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GRASSES OF THE TEXAS HILL COUNTRY: VEGETATIVE KEY AND DESCRIPTIONS

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ABSTRACT

A key and a set of descriptions, based solely on vegetative characteristics, is provided for the identification of 66 genera and 160 grass species, both native and naturalized, of the Texas Hill Country. The principal characters used (features of longevity, growth form, roots, rhizomes and stolons, culms, leaf sheaths, collars, auricles, ligules, leaf blades, vernation, vestiture, and habitat) are discussed and illustrated. This treatment should prove useful at times when reproductive material is not available.

Because of its size and variation in environmental conditions, Texas provides habitat for well over 700 species of grasses (Shaw 2012). For identification purposes, the works of Correll and Johnston (1970); Gould (1975) and, more recently, Shaw (2012) treat Texas grasses in their entirety. In addition to these comprehensive works, regional taxonomic treatments have been done for the grasses of the Cross Timbers and Prairies (Hignight et al. 1988), the South Texas Brush Country (Lonard 1993; Everitt et al. 2011), the Gulf Prairies and Marshes (Hatch et al. 1999), and the Trans-Pecos (Powell 1994) natural regions. In these, as well as in numerous other manuals and keys, accurate identification of grass species depends on the availability of reproductive material. No current treatment provides any useful measures for identifying Texas grasses by vegetative characters. Identification of grass species, however, must often be attempted at times when flowers or fruits are unavailable, i.e., when the specimens were collected prior to the flowering/fruiting period or the flowers or fruits were lost to mowing or grazing.

The development of a reliable system to accurately identify grasses in the vegetative state has been attempted, but only in a limited number of works. Most notable are Hitchcock's treatment of the grasses of the Pacific Northwest (1969), Sutherland's key to Nebraska grasses (1975), and Barnard and Potter's work on the grasses of New Mexico (1985). The small number of additional, less comprehensive works includes a vegetative key for Kansas grasses (Copple & Aldous 1932), a similar treatment for Arizona range grasses (Copple & Pase 1967), and Sexton's vegetative treatment of central Texas grasses (2000). This latter work includes vegetative descriptions for 31 species; however, it does not include a key and covers a very limited geographic area.

The treatment presented here presents a comprehensive key and set of descriptions for the identification of central Texas grasses based exclusively on vegetative characteristics. It includes the grass species that occur in the Texas Hill Country or Balcones Canyonlands (Figure 1), a subregion of

the Edwards Plateau natural region of Texas. The work allows for the identification of grass species at such times when a key based on reproductive material is useless.

This treatment will be an indispensable tool for botanists, ecologists, wildlife managers, and environmental consultants. It will also serve as the framework for future work on vegetative keys for the grasses of the other natural regions of Texas.

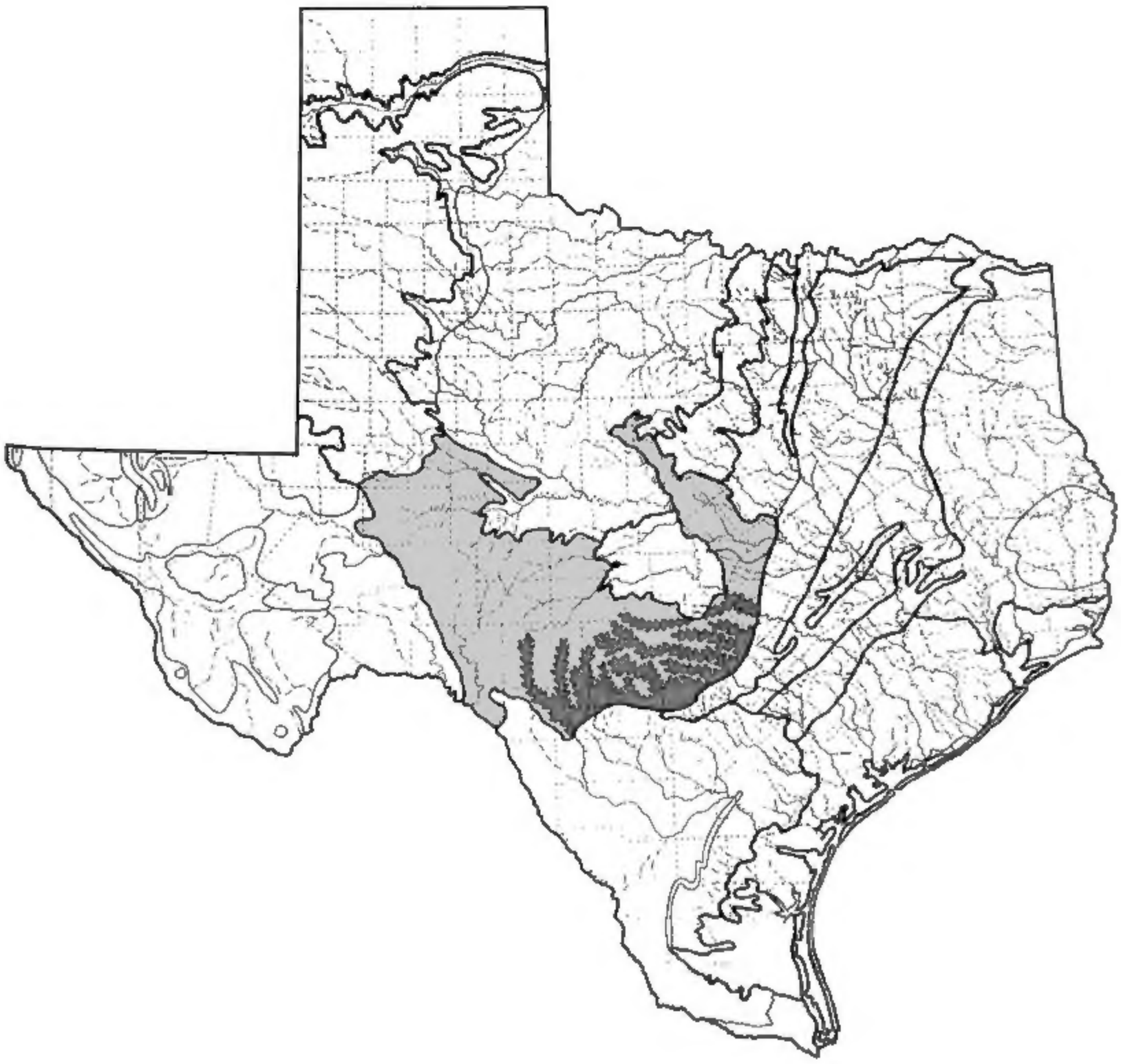
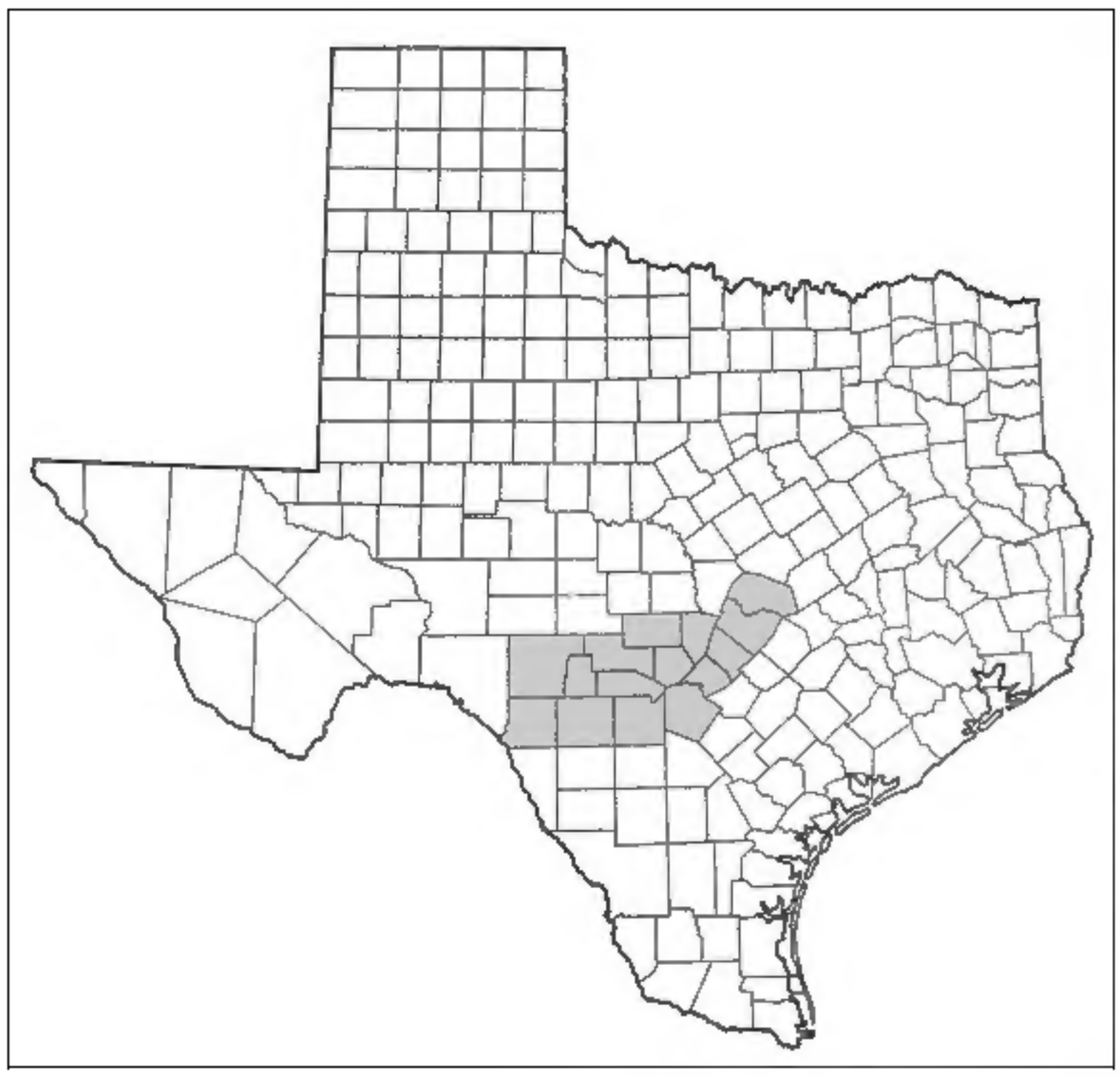


Figure 1. The Balcones Canyonlands subregion (dark gray) within the Edwards Plateau Natural Region (gray). Redrawn from LBJ School of Public Affairs (1978).

Materials and Methods

A list of grass species occurring within the Texas Hill Country was compiled from the county distribution maps in Turner et al. (2003) and Shaw (2012). Species reported from the following counties were initially included: Bandera, Bexar, Blanco, Comal, Edwards, Gillespie, Hays, Kendall, Kerr, Kinney, Medina, Real, Travis, Uvalde, and Williamson (Figure 2). Since many of these counties lie only partially in the Hill Country, label data were used to exclude species that were not collected on the Edwards Plateau. The resulting list included 66 genera and 160 species of native and naturalized grasses. A complete list of the species treated, arranged by subfamily and tribe, is included as Appendix A, and a list of the specimens examined is included as Appendix B. Nomenclature follows Barkworth et al. (2007).



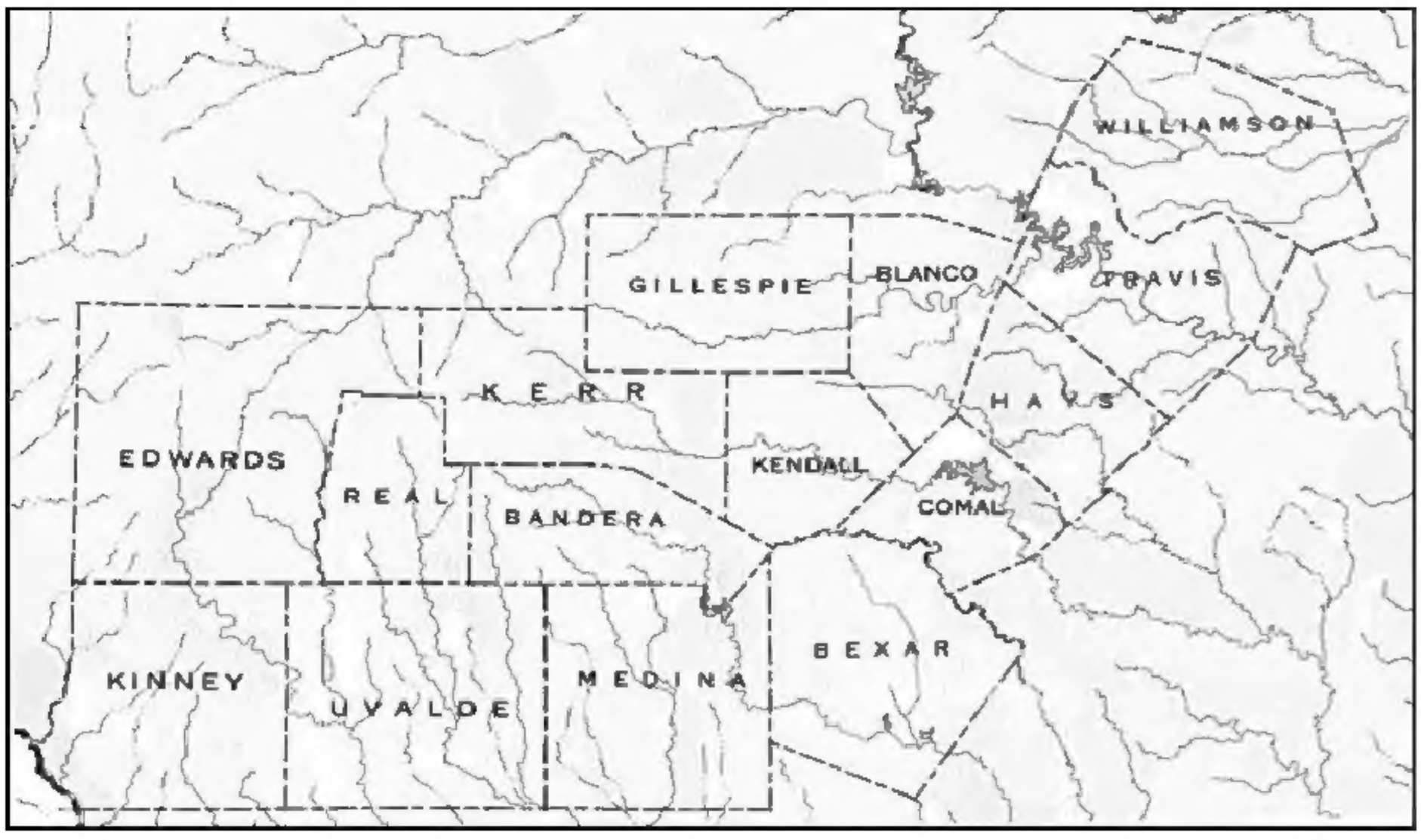


Figure 2. Counties partially or wholly included in the Texas Hill Country.

Both living plants and herbarium specimens were examined to collect descriptive data on vegetative morphology, with most of the descriptive work based on specimens from throughout the Texas range of each species housed at SWT, TAES and TEX-LL. The keys of Hitchcock (1969),

Sutherland (1975), and Barnard and Potter (1984) were consulted to aid in the selection of important vegetative characteristics. When information could not be discerned from the available specimens, characters were obtained from the works of Silveus (1933), Correll and Johnston (1970), Gould (1975), and Shaw (2012). A discussion of the principal characters employed in the construction of the key is presented below. Included are descriptions and general information on the characteristics that appear in the key and the species descriptions. The illustrations provided at the end of this section are general representations designed to assist the user. They are not drawn to scale and do not represent any particular species. An overview of basic grass structure is provided in Figure 3.

Longevity. Plant longevity is either perennial, persisting for more than a single year, or annual, completing the growth cycle within a single year. Perennial grasses typically exhibit evidence of the previous year's growth near the base and often have an extensive, well-developed root system that may include rhizomes. Annual grasses lack the remains of previous year's growth, have a shallow root system that is easily pulled up, and are never rhizomatous.

Growth Form. Growth form is described as solitary, cespitose, or mat-forming (Figure 4). Solitary plants can also occur in small clumps consisting of a few individual plants. Cespitose grasses are clusters or a tuft of shoots arising either directly from a single crown or from the nodes of often short or reduced rhizomes or stolons. Mat-forming grasses or sod-forming grasses entangle the uppermost layer of soil with rhizomes or stolons.

Roots. The rootstock of a grass plant is a fibrous network of slender, irregularly branched, adventitious roots. The roots develop from the lower nodes of the culm and quickly replace the short-lived primary root system.

Rhizomes and Stolons. Rhizomes and stolons are horizontal stems involved in vegetative reproduction. Both structures consist of internodes, nodes, and reduced leaves. The nodes of rhizomes and stolons typically give rise to roots and new shoots. Rhizomes run underground, often produce scale-like leaves, and are typically stout and usually obvious when the grass is removed from the soil. Stolons run along the top of the soil, lack scale-like leaves, and do not require excavation to observe. In some species where rhizomes and stolons are absent, the plant arises from a slightly swollen, hard, and often knotty base (e.g. *Digitaria insularis* and *Muhlenbergia porteri*).

Culms. Culms, the jointed stems of a grass plant, are composed of internodes and nodes. Culms are described as erect or ascending, geniculate, decumbent, or prostrate according to their growth habit (Figure 5). Geniculate culms are bent abruptly at a node, resembling a knee or elbow. Decumbent culms lie on the ground but have ascending tips. Prostrate culms lie flat on the ground. Culm internodes are typically cylindrical and elongate. Culm nodes are usually swollen.

Sheaths. The sheath is the lower portion of the grass leaf and encloses the culm or a developing leaf. Sheaths are classified as rounded or compressed (Figure 6). Compressed sheaths show some degree of longitudinal flattening. Compressed or rounded sheaths may or may not be keeled. Keeled sheaths have a prominent lateral ridge along the midnerve. Sheaths are also classified with respect to their margins as distinct or closed (Figure 6). Distinct sheath margins are not connate and are further classified as open or overlapping. Distinct, open sheath margins do not completely enclose the culm. The effect is an observable gap between the margins. Distinct, overlapping sheath margins completely enclose the culm such that one margin overlies the other. Closed sheath margins are connate resulting in a sheath that is tubular. The degree of closure varies and often extends the entire length of the sheath. Closed sheaths often tear or split lengthwise upon drying making them appear open but leaving a somewhat conspicuous ragged margin.

Collars. The collar is a band of tissue on the abaxial side of a grass leaf at the junction of the sheath and blade and is typically differentiated by color or texture. Collars are classified as continuous or divided and horizontal or oblique (Figure 7). Continuous collars appear as an uninterrupted band. Divided collars are interrupted by the midrib. Horizontal collars are perpendicular to the midnerve. Oblique collars are higher on one side. In some species (e.g., *Glyceria striata*) the collar is barely visible or cannot be differentiated by color or texture, and it is consequently described as inconspicuous.

Auricles. Auricles are thin, membranous extensions of the collar margins (Figure 7). Careful observations should be made to avoid mistaking auricles for ligule lobes, which are lateral extensions of the ligule that are typically erect. Auricles may or may not clasp the culm, are very fragile, and wither with age. Care should be taken when inspecting them, particularly on dried specimens.

Ligules. The ligule is a small appendage of the leaf sheath on the adaxial side of a grass leaf at the junction of the sheath and blade. Ligules may be membranous or a fringe of hairs. The shape of the ligule apex and the ligule margin can be used to further classify membranous ligules. Ligule apex shapes are acute, obtuse or truncate (Figure 8). Ligule margins can be entire, erose, lacerate, ciliate, or ciliolate (Figure 8). Ligules may also be decurrent and adnate with the sheath margins (Figure 8). Caution should be used when inspecting membranous ligules on dried specimens. Membranous ligules tend to shrivel and deform with age or drying, which can result in an inaccurate determination when using the key. They are best observed on fresh specimens.

Blades. The blade is the flattened, expanded portion of the leaf above the sheath. Blades are classified by the following characteristics: shape, outline in cross section, texture, color, apex shape, margin features, and surface features. Blade outline shapes are linear, lanceolate, and filiform (Figure 9). Cross sectional outlines can be plane (flat), U-shaped, V-shaped, conduplicate, convolute, or involute (Figure 9). Conduplicate blades are folded together lengthwise with the adaxial surface within. Convolute blades are rolled up longitudinally with one margin outside, the other inside and the adaxial surface within. Involute blades have the margins rolled inward toward the adaxial surface. Texture is either firm or flaccid. Color is typically green or glaucous. Occasionally some type of distinct banding pattern or blotching may be present (e.g., *Echinochloa colona*). Apices can be obtuse, acute, acuminate, attenuate, mucronate, or prow-shaped (Figure 10). Blade margins can be entire, barbed, serrate, serrulate, undulate, or exhibit some type of pubescence (Figure 10). The blade margins on some species (e.g., *Erioneuron pilosum*) have a cartilaginous texture and appear whitish in color. The blades of some species (e.g., *Poa annua*) exhibit median lines. Median lines are small, light-colored lines or grooves that run the length of the blade parallel to the midnerve on the adaxial surface (Figure 11). The midnerve on the blades of some species is often conspicuous abaxially. This is due to either its protrusion, a color differentiation (e.g., *Eragrostis cilianensis*), or the presence of vestiture (e.g., *Leersia oryzoides*).

Vernation. Vernation, the cross sectional appearance of the blade as it is developing, is either folded or rolled in grass plants (Figure 11). In folded vernation, the young leaf is conduplicate. In rolled vernation, it is convolute. Vernation is best observed in an innovation, the basal shoot of a perennial grass plant. Slicing through a young sheath just below the collar and observing the enclosed blade can also aid in determining vernation.

Vestiture. Vestiture is the collective term for the epidermal covering of a plant. Vestitures include, but are not limited to pubescence (the general term for any degree of plant hairiness, but as used here the term "pubescent" describes a particular type of vestiture). Vestiture can be present on culms, sheaths, collars, and blades. For the purposes of this key, vestiture is classified as follows:

hirsute, or covered with long, straight, moderately stiff hairs; hispid, or covered with long, straight, stiff, bristle-like hairs; pilose, or covered with long, straight, soft hairs; pubescent, or covered with fine, short, soft hairs; puberulent, or minutely pubescent; scabrous, or rough to the touch due to short, stiff hairs — the most common vestiture in grass plants; strigose, or covered with short, bent, stiff, sharp hairs; tomentose, or covered with short, densely matted, soft hairs; and villous, or covered with long, curved or wavy, soft hairs (Figure 12). The hairs present on some species (e.g., the sheaths of *Leptochloa panicea*) are papilllose. Papillose hairs arise from papillae, minute, nipple-shaped projections on the epidermis (Figure 12). Surfaces without hairs are referred to as glabrous.

Habitat. The habitat describes the environmental conditions in which the plant exists. This can include the topography of an area, intensity of sunlight, available moisture, soil types, and other features. Although not a vegetative characteristic, habitat information can be an important trait when making a final determination.

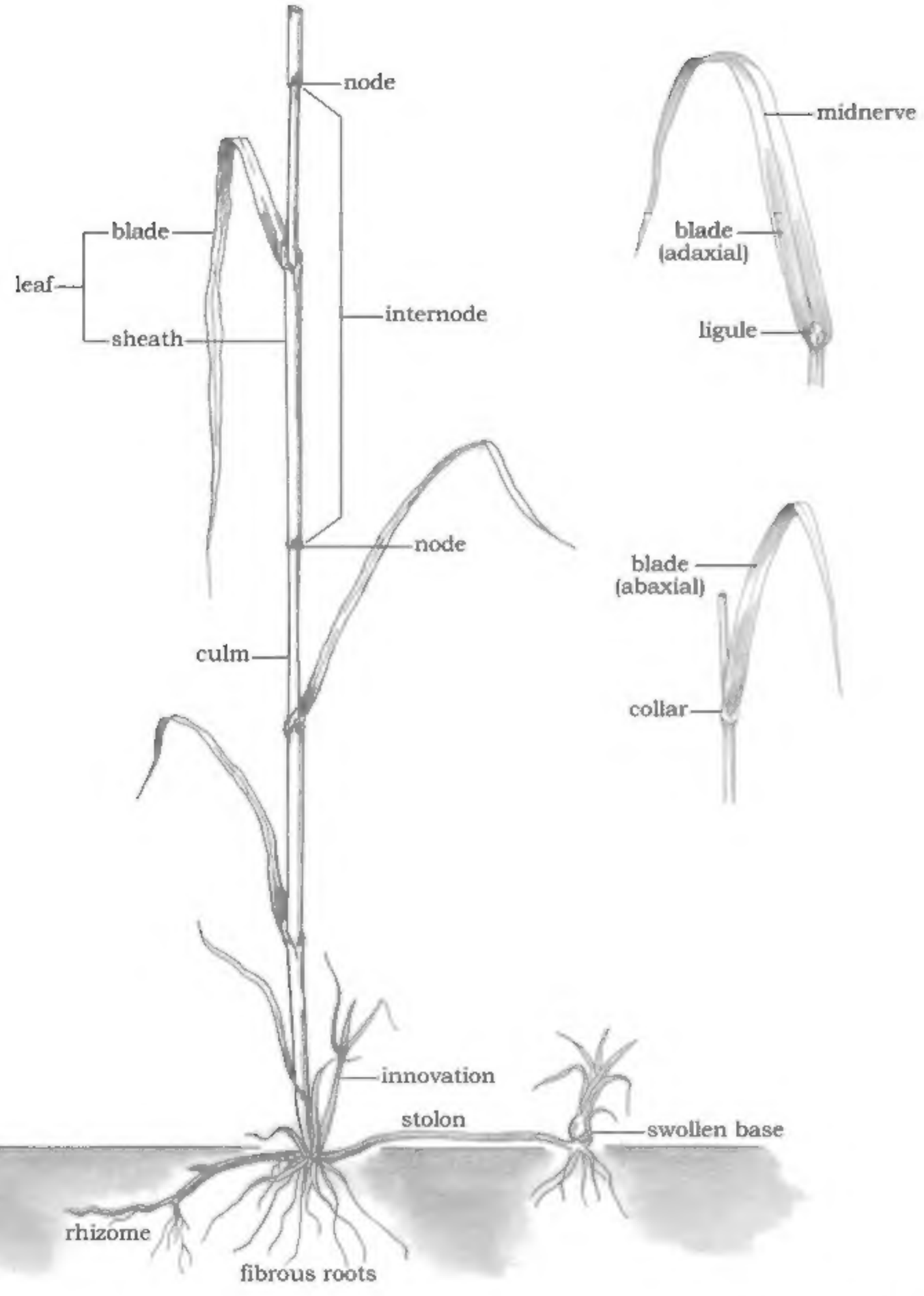
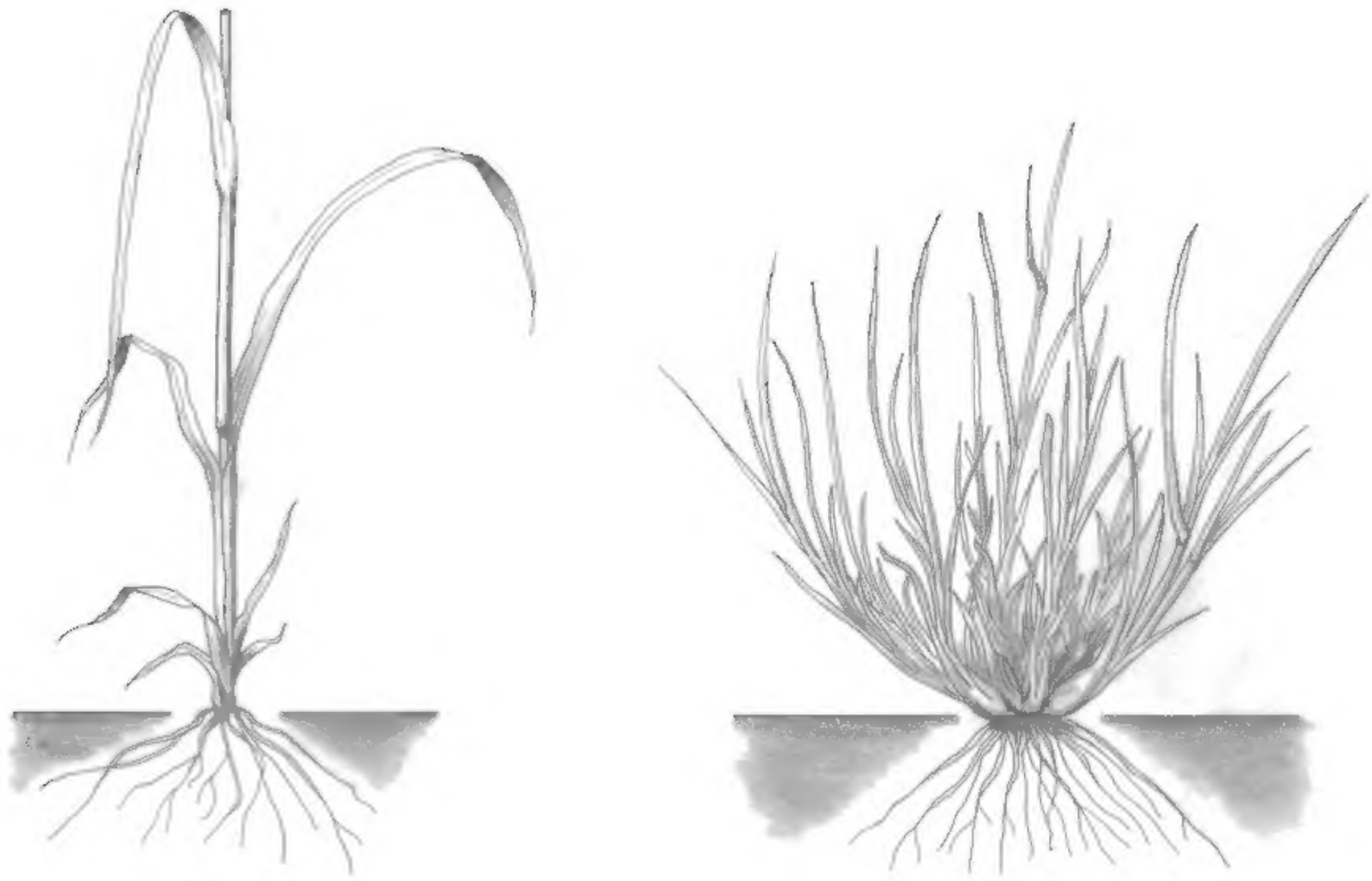
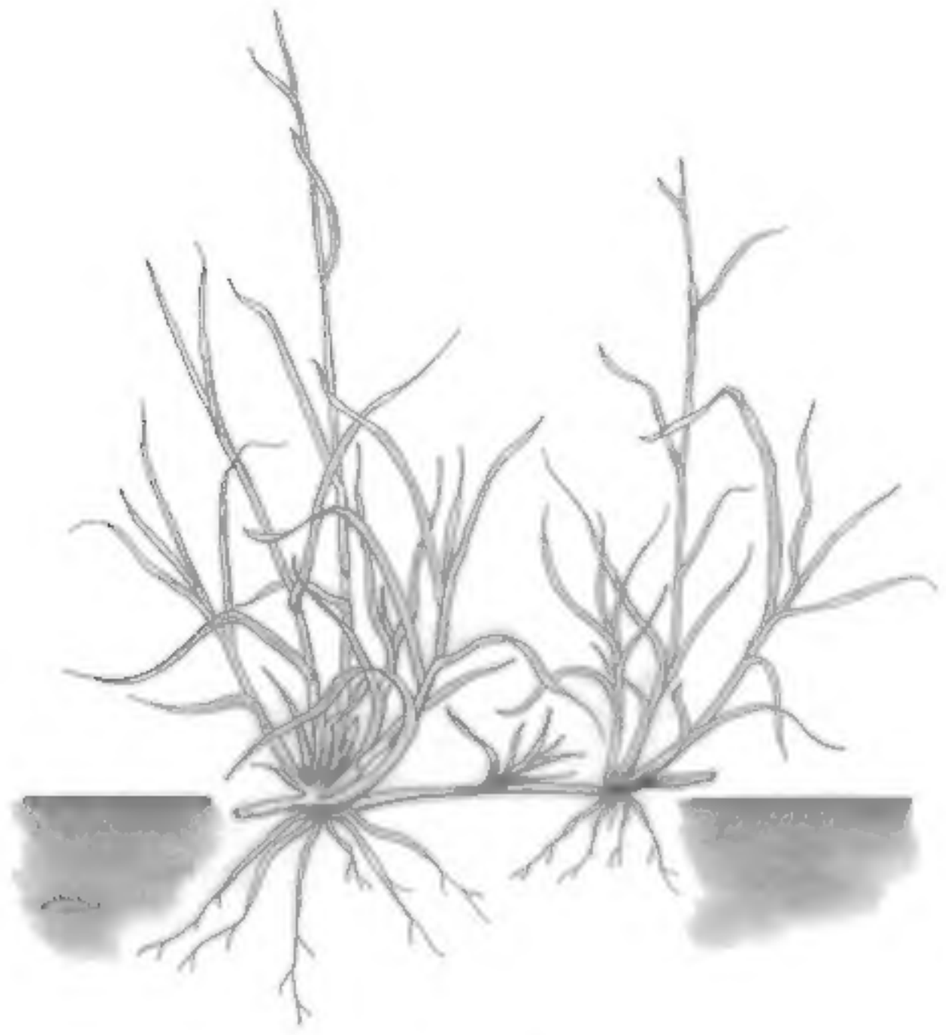


Figure 3. Vegetative morphology of the grass plant. Redrawn from Hitchcock (1969).



solitary

cespitose



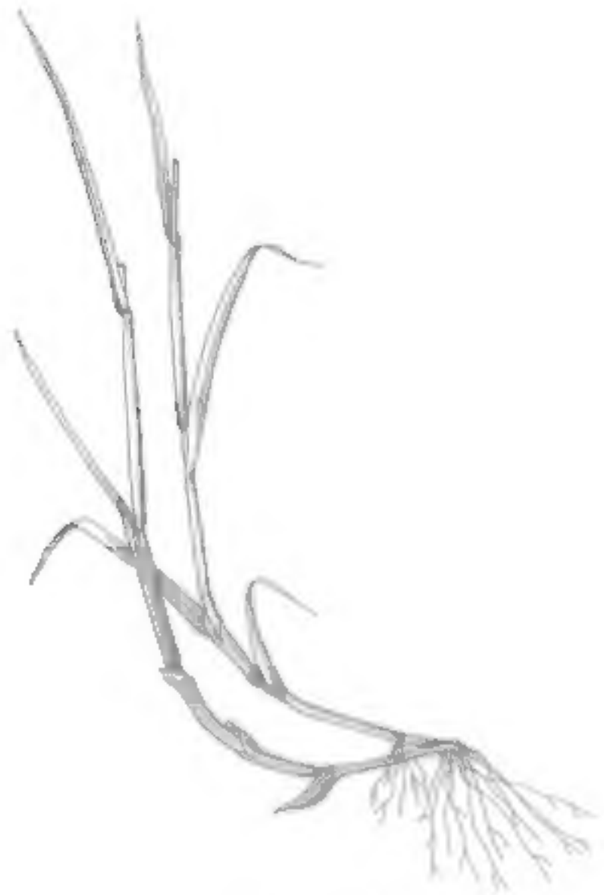
mat-forming

Growth Forms

Figure 4. Growth forms of the grass plant. Redrawn from Hitchcock (1969).

erect

geniculate

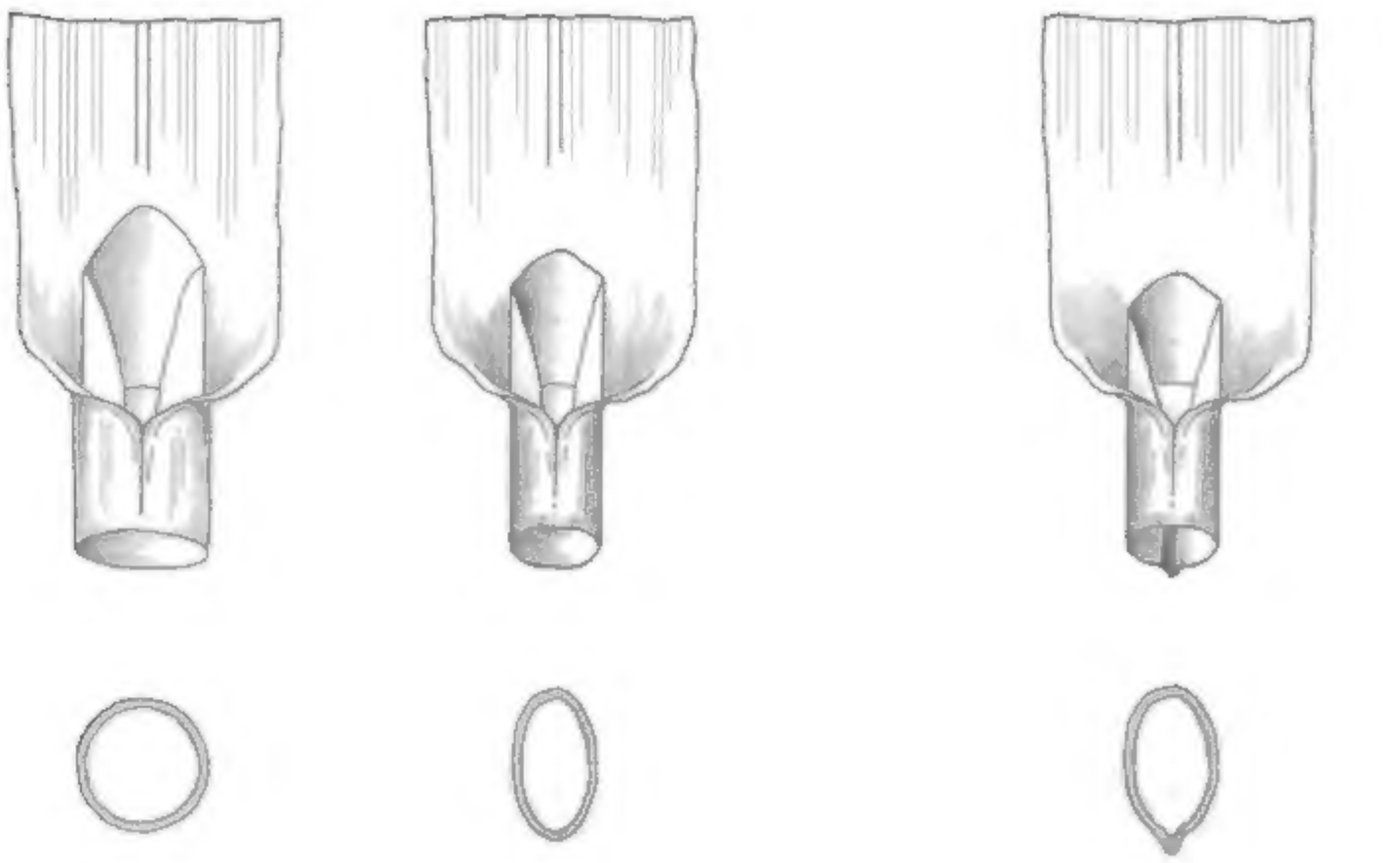


decumbent

prostrate

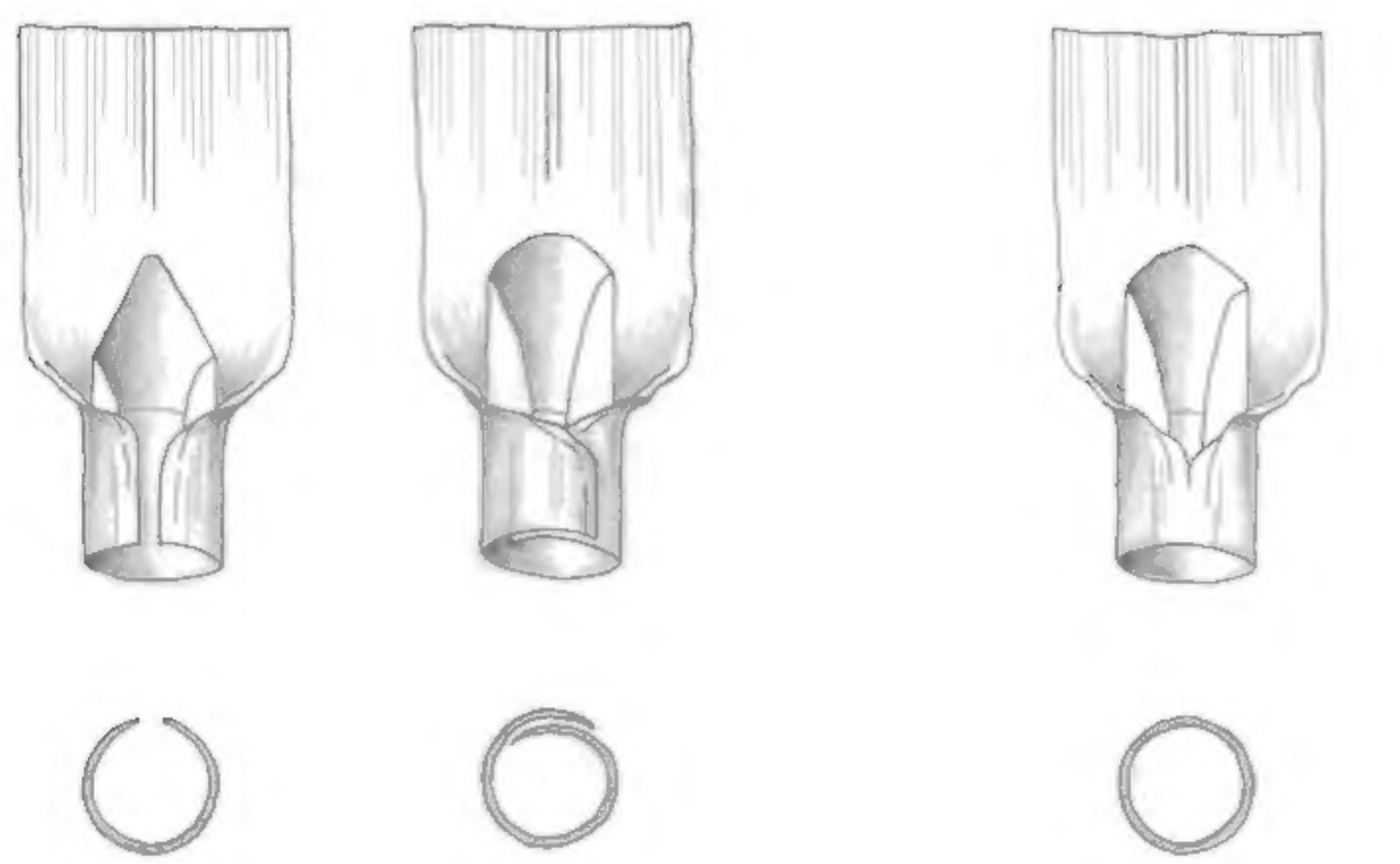
Culm Growth Habits

Figure 5. Culm growth habits of the grass plant. Redrawn from Hitchcock (1969).



rounded compressed compressed and keeled

Sheath Types



open (distinct) overlapping (distinct) closed

Sheath Margins

Figure 6. Sheath types (with cross-sectional outlines) and sheath margins (with cross-sectional outlines) of the grass plant. Redrawn from Hitchcock (1969).

horizontal
(continuous)

oblique
(continuous)

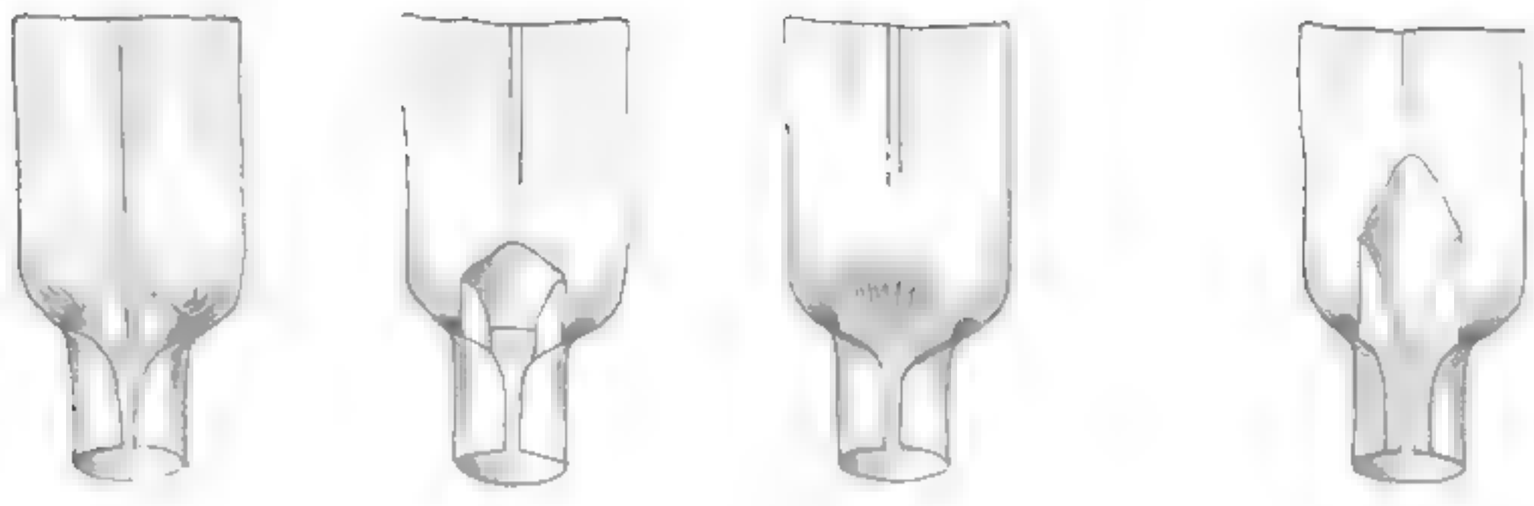
divided

inconspicuous

Collar Types

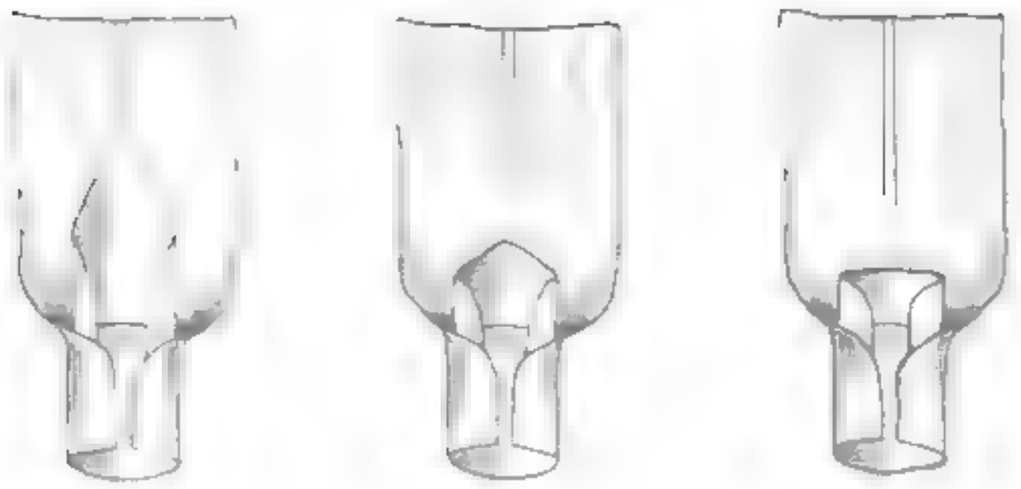
Auricle Morphology

Figure 7. Collar types and auricle morphology of the grass plant. Redrawn from Hitchcock (1969).



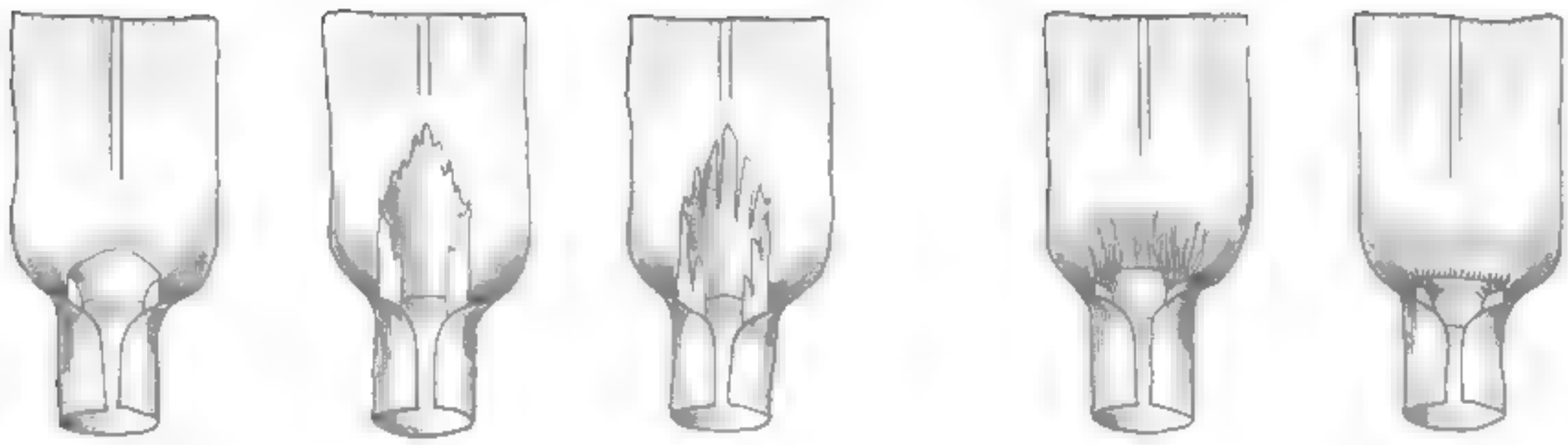
absent membranous fringe of hairs decurrent

Ligule Types



acute obtuse truncate

Ligule Apex Shapes (membranous)

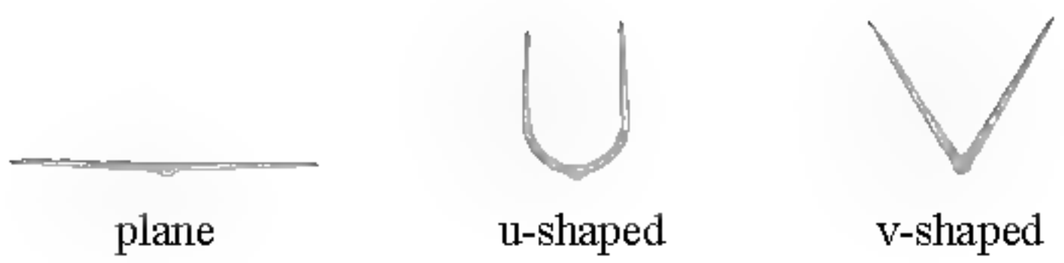


entire erose lacerate ciliate ciliolate

Ligule Margins (membranous)

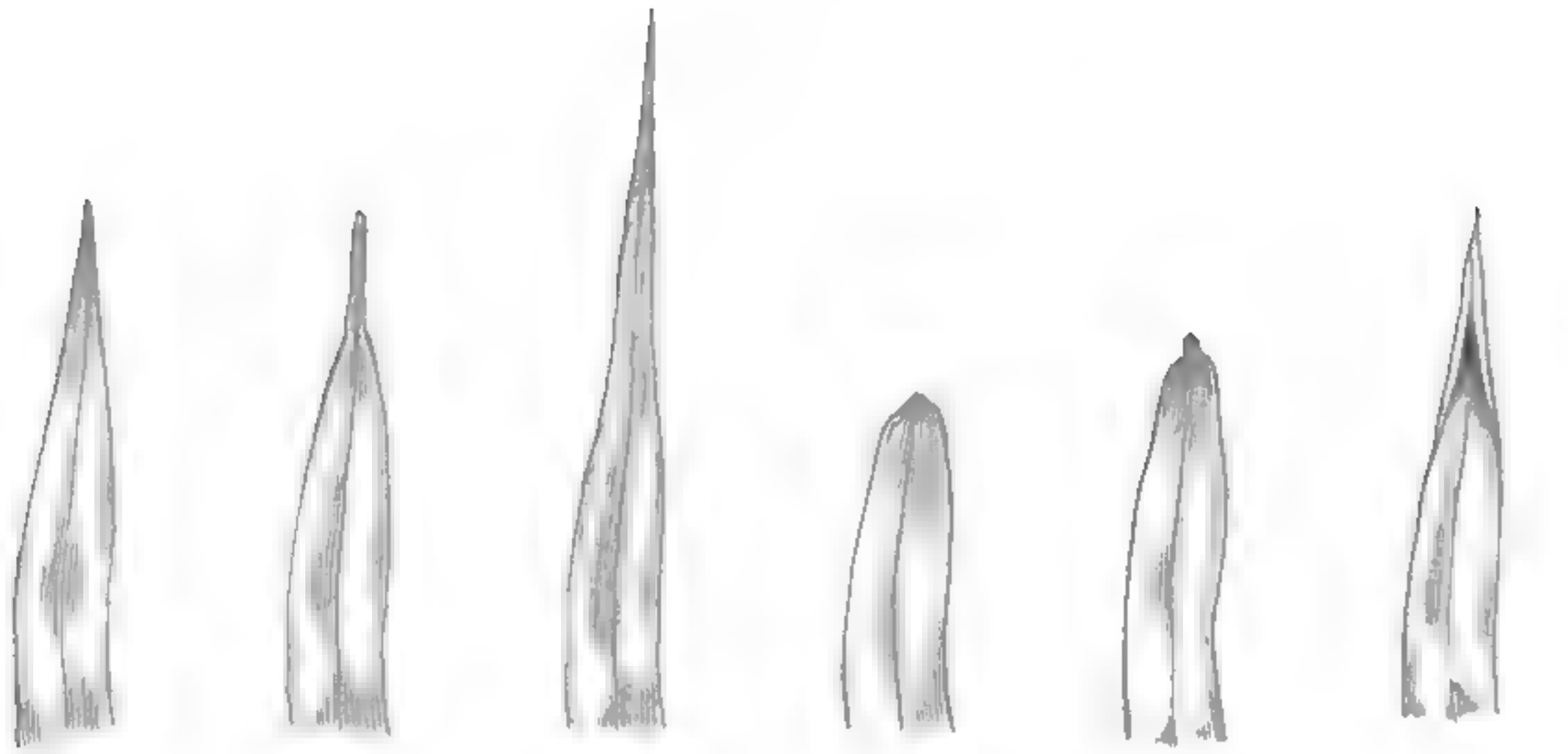
Figure 8. Ligule types, ligule apex shapes and ligule margins of the grass plant. Redrawn from Hitchcock (1969).

Blade Outline Shapes

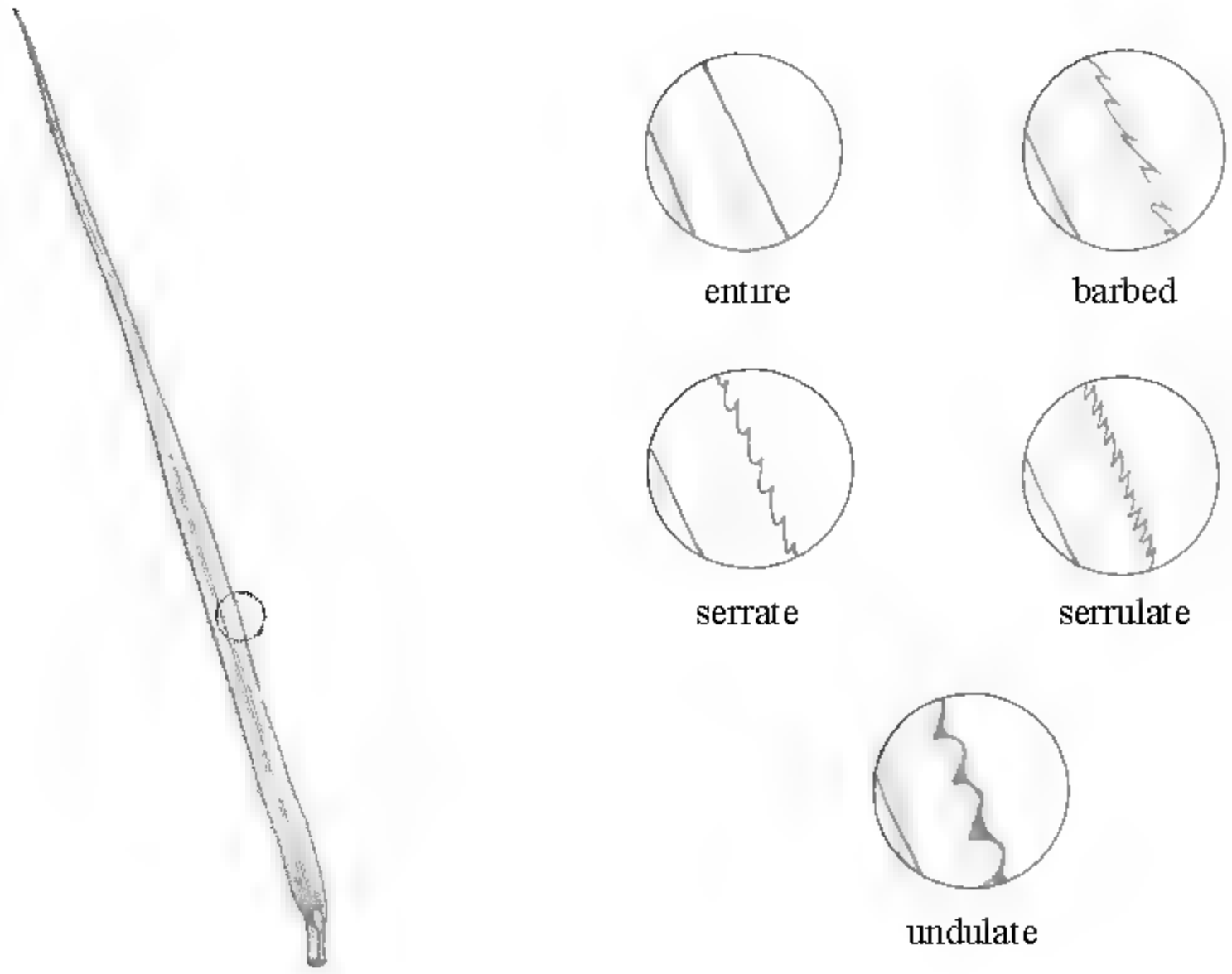


Blade Cross Sectional Outlines

Figure 9 Blade outline shapes [redrawn from Gould (1975) and Hitchcock (1969)] and blade cross sectional outlines [redrawn from Judd et al. (1999)] of the grass plant.



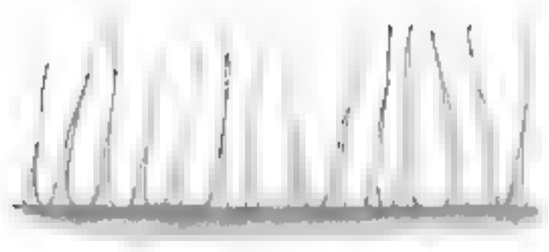
Blade Apices



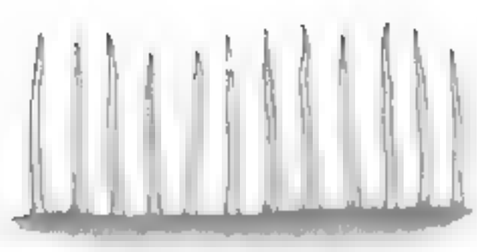
Blade Margins

Figure 10 Blade apices [redrawn from Hitchcock (1969)] and blade margins [redrawn from Hitchcock (1969) and Woodland (2000)] of the grass plant.

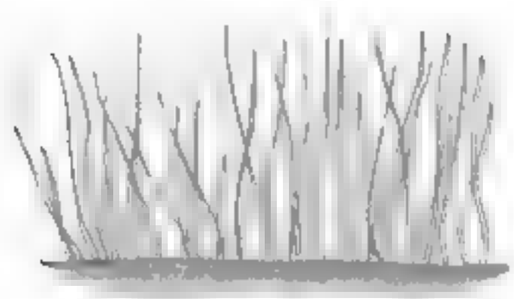
Figure 11 Median lines and blade vernation types (shown in cross sectional outline) of the grass plant. Redrawn from Hitchcock (1969)



hirsute



hispid



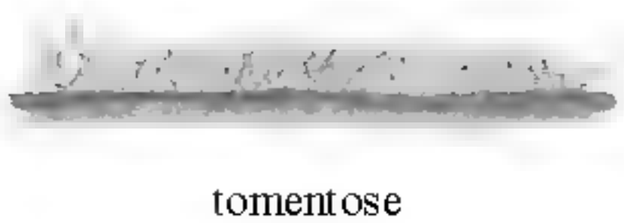
pilose

puberulent

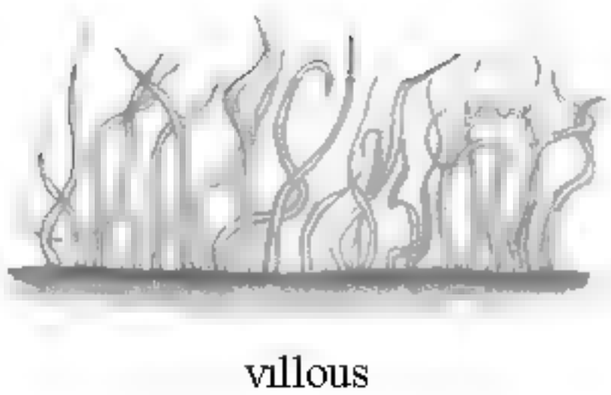
pubescent

scabrous

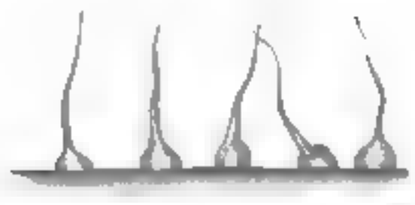
strigose



tomentose



villous



papillose hairs

Vestiture Types

Figure 12. Vestiture types of the grass plant. Redrawn from Walters and Keil (1996).

Vegetative key to grasses of the Texas Hill Country

In addition to the key, a millimeter scale and 10x hand lens will prove valuable and are often necessary to make an accurate determination.

1. Ligules absent

2.Culm nodes (at least some) antrorsely pubescent

3. Blades linear; collars pilose, margins pilose ..... **Nassella leucotricha**
3. Blades lanceolate; collars glabrous, margins glabrous ..... **Dichanthelium sphaerocarpon**

2. Culm nodes (all) glabrous

4. Blade margins entire

5. Leaves typically marked with purple-colored bands, V-shaped markings, or irregular blotches ..... **Echinochloa colona**
5. Leaves green or purplish, but without bands, V-shaped markings, or irregular blotches ..... **Echinochloa crus-pavonis**

4. Blade margins serrulate ..... **Echinochloa crus-galli**

1. Ligules present

6. Auricles present

7. Sheath margins adnate to the auricles or ligule

8. Culm nodes glabrous

9. Ligule margin entire; midnerve inconspicuous ..... **Lolium perenne**
9. Ligule margin erose to lacerate; midnerve conspicuous ..... **Muhlenbergia arenacea**

8. Culm nodes puberulent or hispid ..... **Sorghastrum nutans**

7. Sheath margins free, not united with the auricles or ligule

10. Sheath margins ciliate along the entire length

11. Plants annual; culms erect or geniculate; blades <4 mm wide, apex acute ..... **Aegilops cylindrica**
11. Plants perennial; culms decumbent; blades ≥4 mm wide, apex attenuate ..... **Elymus canadensis**

10. Sheath margins glabrous along the entire length

12. Ligules >1 mm long

13. Lowermost sheaths glabrous externally; ligule margin entire ..... **Hordeum vulgare**

13. Lowermost sheaths pubescent externally; ligule margin erose
..... **Triticum aestivum**

12. Ligules ≤1 mm long

14. Sheaths pubescent externally; ligules <0.5 mm long, margin entire, glabrous
..... **Hordeum pusillum**
14. Sheaths glabrous, pilose or sparsely hispid externally; ligules ≥0.5 mm long, margin erose, erose and ciliolate, or lacerate

15. Ligule margin lacerate, glabrous ..... **Lolium temulentum**
15. Ligule margin erose or erose and ciliolate

16. Plants perennial; culms >60 cm tall; collar often purplish ..... **Elymus virginicus**
16. Plants annual; culms ≤60 cm tall; collar not purplish ..... **Hordeum murinum**

6. Auricles absent

17. Culm nodes with hairs, the hairs occasionally restricted to the upper or lower nodes

18. Ligule membranous, the margins entire, erose or lacerate

19. Sheath margins with hairs, the hairs occasionally restricted to the outer margin

20. Collars pilose ..... **Nassella leucotricha**
20. Collars glabrous

21. Culm nodes villous with hairs 1 3 mm long; collars divided
..... **Bothriochloa barbinodis**
21. Culm nodes pubescent; collars continuous

22. Blade apex attenuate, adaxial surface glabrous ..... **Bothriochloa laguroides**
22. Blade apex acute, adaxial surface mostly glabrous, but with a few long hairs immediately above the ligule ..... **Hilaria mutica**

19. Sheath margins glabrous

23. Collars sparsely puberulent to pubescent

24. Blade margins serrate ..... **Leersia oryzoides**
24. Blade margins entire ..... **Dichanthium annulatum**

23. Collars glabrous

25. Rhizomes or stolons present

26. Leaf surfaces retrorsely scabrous ..... **Leersia oryzoides**
26. Leaf surfaces glabrous or sparsely pilose

27. Culms erect; blade margins scabrous ..... **Hilaria belangeri**

27. Culms decumbent; blade margins entire ..... **Paspalum distichum**

25. Rhizomes or stolons absent

28. Blade margins ciliate basally

29. Upper culm nodes glabrous; blades filiform
..... **Bothriochloa edwardsiana**
29. Upper culm nodes antrorsely pubescent; blades linear
..... **Bothriochloa hybrida**

28. Blade margins glabrous

30. Collars divided ..... **Bothriochloa barbinodis**
30. Collars continuous

31. Sheath margins closed to within a few centimeters of the throat ..... **Bromus japonicus**
31. Sheath margins distinct, open along the entire length

32. Culm nodes sparsely pilose; ligule margin lacerate
..... **Tridens eragrostoides**
32. Culm nodes pubescent; ligule margin erose

33. Abaxial surface of blades pubescent
..... **Bromus texensis**
33. Abaxial surface of blades glabrous or scabrous

34. Blades lanceolate ..... **Paspalum pubiflorum**
34. Blades linear

35. Adaxial surface of blades hispid with papillose hairs ..... **Bothriochloa ischaemum**
35. Adaxial surface of blades glabrous, scabrous, pillose or sparsely hirsute, the hairs, when present, not papillose

36. Plants perennial; culm nodes pubescent; sheaths glabrous externally
..... **Bromus pubescens**
36. Plants annual; culm nodes retrorsely pubescent; sheaths glabrous or sparsely pilose externally ..... **Bromus secalinus**

18. Ligule a fringe of hairs or membranous with a ciliate or ciliolate margin

37. Sheath margins with hairs, the hairs occasionally restricted to the outer margin

38. Blades lanceolate

39. Collars glabrous

40. Blade margins entire, crispate, cartilaginous, white-colored ..... **Dichanthelium sphaerocarpon**
40. Blade margins entire, plane, not cartilaginous, not white-colored

41. Sheaths pilose externally with papillose hairs, margins ciliate along their entire length ..... **Dichanthelium oligosanthes**
41. Sheaths glabrous or pilose externally, the hairs, when present, not papillose, margins ciliate only near the throat ..... **Dichanthelium pedicellatum**

39. Collars pubescent

42. Adaxial surface of lowermost blades glabrous ..... **Dichanthelium oligosanthes**
42. Adaxial surface of lowermost blades hispid or hirsute

43. Collars perpendicular, margins pubescent ..... **Panicum capillare**
43. Collars oblique, margins glabrous ..... **Urochloa fusca**

38. Blades linear

44. Ligules ciliate with a mixture of short and long hairs

45. Culm internodes distally pubescent; sheath margins ciliate along the entire length ..... **Dichanthelium acuminatum**
45. Culm internodes glabrous; sheath margins ciliate only near the throat ..... **Panicum virgatum**

44. Ligules ciliate with hairs of a uniform length

46. Collars glabrous

47. Ligules ≤1 mm long; blade margins with papillose hairs ..... **Triplasis purpurea**
47. Ligules >1 mm long; blade margins glabrous

48. Plants perennial; collar margins pilose ..... **Setaria villosissima**
48. Plants annual; collar margins glabrous ..... **Setaria viridis**

46. Collars pubescent or pilose

49. Sheaths hispid externally with papillose hairs ..... **Panicum capillare**
49. Sheaths glabrous or pilose externally, the hairs, when present, not papillose

50. Plants annual; culm nodes hirsute; blades hispid ..... **Setaria grisebachii**
50. Plants perennial; culm nodes antrorsely puberulent; blades scabrous and finely pubescent ..... **Setaria scheelei**

37. Sheath margins glabrous

51. Collars pubescent

52. Blades linear

53. Ligules >1 mm long; blade margins hyaline or white-colored; midnerve conspicuous, usually white or greenish white ..... **Sorghum halepense**
53. Ligules ≤1 mm long; blade margins opaque, green-colored; midnerve inconspicuous, green-colored ..... **Tridens muticus**

52. Blades lanceolate

54. Sheath margins overlapping; collars oblique; blade margins entire ..... **Urochloa fusca**
54. Sheath margins open; collars perpendicular; blade margins serrate ..... **Urochloa texana**

51. Collars glabrous

55. Abaxial surface of blades with hairs

56. Sheath margins closed to within a few centimeters of the throat ..... **Bromus japonicus**
56. Sheath margins distinct, open along the entire length

57. Plants mat-forming; culms decumbent or prostrate, <20 cm tall ..... **Eragrostis reptans**
57. Plants cespitose; culms erect or geniculate, ≥20 cm tall

58. Sheaths glabrous or hispid externally with papillose hairs ..... **Panicum coloratum**
58. Sheaths puberulent or pubescent externally, the hairs, when present, not papillose

59. Plants annual; culm internodes glabrous or puberulent, nodes puberulent ..... **Eriochloa contracta**
59. Plants perennial; culm internodes pubescent, nodes antrorsely pubescent ..... **Eriochloa sericea**

55. Abaxial surface of blades glabrous or scabrous

60. Culm internodes pubescent

61. Plants annual, mat-forming; culms decumbent or prostrate, <20 cm tall; ligules <0.5 mm long ..... **Eragrostis reptans**
61. Plants perennial, cespitose; culms erect, ≥20 cm tall; ligules ≥0.5 mm long ..... **Eriochloa sericea**

60. Culm internodes glabrous

62. Sheaths scabrous externally; blades scabrous ..... **Tridens buckleyanus**
62. Sheaths glabrous or with hairs externally; blades glabrous or with hairs, but not scabrous

63. Blade margins scabrous or barbed

64. Ligules ciliate with both short and long hairs; blade margins scabrous ..... **Panicum virgatum**
64. Ligules ciliate with hairs of a consistent length; blade margins barbed ..... **Tridens albescens**

63. Blade margins entire

65. Rhizomes elongate; sheaths occasionally purplish; blade margins hyaline or whitish ..... **Sorghum halepense**
65. Rhizomes short or absent; sheaths green-colored; blade margins not hyaline or whitish

66. Collar margins puberulent or pilose

67. Culm nodes antrorsely pubescent; sheaths laterally compressed and keeled ..... **Panicum antidotale**
67. Culm nodes puberulent; sheaths rounded, not keeled ..... **Pennisetum ciliare**

66. Collar margins glabrous or sparsely villous

68. Collar margins glabrous ..... **Panicum coloratum**
68. Collar margins sparsely villous

69. Lower sheaths pilose externally, upper sheaths pubescent externally, the hairs not papillose; ligules sparsely ciliate; blades green ..... **Bromus pubescens**
69. Lower sheaths and upper sheaths glabrous or pilose externally with papillose hairs; ligule ciliate; blades glaucous ..... **Panicum hallii**

17. Culm nodes glabrous

70. Ligules membranous, the margins entire, erose or lacerate

71. Sheaths with hairs externally, the hairs occasionally restricted to the upper or lower sheaths

72. Collar margins pilose

73. Sheaths pilose externally with papillose hairs; blade margins undulate and white-colored ..... **Digitaria ciliaris, D. sanguinalis**
73. Sheaths pubescent, sparsely pilose or sparsely villous externally, the hairs not papillose; blade margins plane, not white colored

74. Collars pubescent ..... **Paspalum setaceum**
74. Collars glabrous

75. Plants perennial; culms ≥80 cm tall; blade apex acute, adaxial surface pilose behind and immediately above the ligule with hairs to 5 mm long ..... **Andropogon gerardii**

75. Plants annual; culms <80 cm tall; blade apex obtuse, adaxial surface glabrous, occasionally villous basally ..... **Eleusine indica**

72. Collar margins glabrous

76. Sheath margins closed to within 2–3 cm of the throat

77. Young shoots laterally compressed; collars glabrous; blades glabrous or hirsute ..... **Bromus catharticus**
77. Young shoots rounded; collars pubescent; blades pubescent ..... **Bromus tectorum**

76. Sheath margins distinct, open along the entire length

78. Ligules obtuse or acute

79. Sheaths laterally compressed

80. Culms ≤20 cm tall; ligule margin entire; blade margins entire ..... **Paspalum dilatatum**
80. Culms >20 cm tall; ligule margin erose; blade margins scabrous ..... **Schizachyrium scoparium**

79. Sheaths rounded

81. Ligules decurrent, adnate with the sheath margins, margins erose ..... **Avena fatua, A. sativa**
81. Ligules free, not united with the sheath margins, margins entire or lacerate

82. Stolons present, elongate, wiry; blades glaucous .. **Hopia obtusa**
82. Stolons absent; blades green-colored

83. Plants annual; collars oblique; blades hispid ..... **Lolium perenne**
83. Plants perennial; collars perpendicular; blades glabrous or scabrous

84. Pubescence restricted to the lower sheaths, the upper sheaths glabrous; blade apex acute, adaxial surface glabrous with a fringe of long, soft hairs immediately above the ligule ..... **Paspalum urvillei**
84. Pubescence present on both the upper and lower sheaths; blade apex attenuate, adaxial surface scabrous or sparsely pilose ..... **Tridens eragrostoides**

78. Ligules truncate

85. Collars pubescent ..... **Paspalum setaceum**
85. Collars glabrous

86. Blades ≤1 mm wide, involute ..... **Vulpia octoflora**
86. Blades >1 mm wide, flat or U-shaped

87. Ligules ≤0.5 mm long

88. Culm branched basally; sheaths pilose; blade margins undulate, adaxial surface sparsely pubescent, sparsely pilose basally ..... **Digitaria cognata**
88. Culms unbranched; sheaths pubescent; blade margins plane; adaxial surface pubescent or glabrous..... **Hordeum pusillum**

87. Ligules >0.5 mm long

89. Culms erect, arising from a hard, knotty base ..... **Digitaria californica, D. insularis, D. patens**
89. Culms decumbent, arising from typical rootstock

90. Plants annual; ligule margin erose; blade apex attenuate, adaxial surface pilose, the basal hairs papillose ..... **Leptochloa mucronata**
90. Plants perennial; ligule margin entire; blade apex acute, adaxial surface mostly glabrous, but sparsely hisute basally, the hairs not papillose ..... **Paspalum pubiflorum**

71. Sheaths glabrous or scabrous externally

91. Ligules truncate

92. Collar margins pilose or sparsely villous

93. Sheath margins villous ..... **Bothriochloa laguroides**
93. Sheath margins glabrous

94. Plants perennial; culms >70 cm tall; sheaths often purplish at the base; blade apex acuminate; midnerve conspicuous ..... **Andropogon gerardii**
94. Plants annual; culms ≤70 cm tall; sheaths green-colored; blade apex obtuse; midnerve inconspicuous ..... **Eleusine indica**

92. Collar margins glabrous

95. Ligules decurrent, adnate with the sheath margins

96. Sheath margins closed along the entire length ..... **Melica nitens**
96. Sheath margins distinct, open along the entire length

97. Culms striate; ligules ≤1 mm long; blades glabrous, margins cartilaginous, whitish; midnerve conspicuous, whitish ..... **Muhlenbergia arenacea**
97. Culms without striations; ligules >1 mm long; blades scabrous, margins not cartilaginous, green; midnerve inconspicuous, green ..... **Muhlenbergia porteri**

95. Ligules free, not united with the sheath margins

98. Blades ≤1 mm wide, involute or plane

99. Plants perennial; rhizomes present; culms erect ..... **Muhlenbergia utilis**
99. Plants annual; rhizomes absent; culms geniculate or decumbent ..... **Vulpia octoflora**

98. Blades >1 mm wide, plane or slightly conduplicate

100. Sheath margins closed to within a few centimeters of throat; blade apex obtuse, often prow-shaped; median lines present ..... **Glyceria striata**
100. Sheath margins distinct, open along the entire length; blade apex acute, not prow-shaped; median lines absent

101. Plants annual; collars divided, often oblique ... **Sphenopholis obtusata**
101. Plants perennial; collars continuous, linear

102. Sheath margins villous; blade apex attenuate ..... **Bothriochloa laguroides**
102. Sheath margins glabrous; blade apex acute or mucronate

103. Culms >40 cm tall ..... **Festuca versuta**
103. Culms ≤40 cm tall

104. Sheaths slightly laterally compressed, weakly keeled; blade apex mucronate, adaxial surface glabrous or scabrous, sparsely pilose at the base ..... **Chloris andropogonoides**
104. Sheaths rounded, not keeled; blade apex acute, adaxial surface pubescent occasionally glabrous ..... **Hordeum pusillum**

91. Ligules obtuse or acute

105. Ligules obtuse

106. Collars divided ..... **Sphenopholis obtusata**
106. Collars continuous

107. Ligules decurrent, adnate with the sheath margins

108. Blade apex obtuse, often prow-shaped; median lines present ..... **Poa annua**
108. Blade apex acute, not prow-shaped; median lines absent

109. Culms ≥30 cm tall, thick; ligule margins erose; blades >3 mm wide ..... **Avena fatua, A. sativa**
109. Culms <30 cm tall, slender; ligule margins lacerate; blades ≤3 mm wide ..... **Desmazeria rigida**

107. Ligules free, not united with the sheath margins

110. Blades filiform, margins ciliate basally ..... **Bothriochloa edwardsiana**
110. Blades linear, margins glabrous or scabrous

111. Stolons present

112. Stolon nodes villous, swollen; culms erect; blades glaucous, apex attenuate ..... **Hopia obtusa**
112. Stolon nodes glabrous, not swollen; culms geniculate or decumbent; blades green-colored, apex acute ..... **Polypogon viridis**

111. Stolons absent

113. Sheath margins villous ..... **Bothriochloa laguroides**
113. Sheath margins glabrous or pilose near the throat

114. Collars oblique ..... **Lolium perenne**
114. Collars perpendicular

115. Culms branched; sheaths laterally compressed and keeled; blade margins scabrous ..... **Schizachyrium scoparium**
115. Culm unbranched; sheaths rounded, not keeled; blade margins entire

116. Blades scabrous or sparsely pilose, apex attenuate ..... **Tridens eragrostoides**
116. Blades glabrous, apex acute

117. Plants perennial; blades ≤ 3 mm wide ..... **Agrostis hyemalis**
117. Plants annual; blades > 3 mm wide ..... **Phalaris caroliniana**

105. Ligules acute

118. Lower sheaths laterally compressed

119. Blades spirally twisted upon drying, margins scabrous, whitish ..... **Schedonnardus paniculatus**
119. Blades plane or involute upon drying, margins entire, not whitish

120. Ligules free, not united with the sheath margins; blades green ..... **Muhlenbergia ×involuta**
120. Ligules decurrent, adnate with the sheath margins; blades pale green to glaucous . ..... **Muhlenbergia lindheimeri**

118. Lower sheaths rounded

121. Rhizomes present, elongate

122. Culms ≤50 cm tall; ligules ≤4mm long, nerves absent; blades ≤15 cm long, margins entire ..... **Poa arachnifera**
122. Culms >50 cm tall; ligules >4 mm long with numerous fine nerves; blades >15 cm long, margins serrate ..... **Zizaniopsis miliacea**

121. Rhizomes absent

123. Culms branched ..... **Leptochloa fusca**
123. Culms unbranched

124. Ligules decurrent, adnate with sheath margins

125. Ligules membranous, white-colored, margin erose ..... **Avena fatua, A. sativa**
125. Ligules membranous, not white-colored, margin lacerate ..... **Polypogon monspeliensis**

124. Ligules free, not united with the sheath margins

126. Blades filiform, arcuate, involute ..... **Muhlenbergia reverchonii**
126. Blades linear, straight, plane ..... **Tridens eragrostoides**

70. Ligules a fringe of hairs or membranous with a ciliate or ciliolate margin

127. Collar margins glabrous

128. Lowermost sheaths keeled or keeled just below the collar

129. Sheath margins with hairs, the hairs occasionally restricted to the outer margin

130. Plants perennial; sheaths distinctly broader than the blades

131. Inner and outer sheath margins pilose; blade acute ..... **Andropogon glomeratus**
131. Inner sheath margins glabrous, outer margins ciliate; apex acute ..... **Andropogon virginicus**

130. Plants annual; sheaths as broad as blades or more narrow than blades

132. Ligules <1 mm long; blades loosely twisted ..... **Setaria pumila**
132. Ligules ≥1 mm long; blades not loosely twisted

133. Outer sheath margins distally ciliate; blade margins entire and plane ..... **Setaria verticillata**
133. Outer sheath margins ciliate or pilose along the entire length; blade margins entire and undulate ..... **Setaria viridis**

129. Sheath margins glabrous

134. Rhizomes present

135. Leaf blade midnerve conspicuous, scabrous abaxially .... **Coelorachis cylindrica**
135. Leaf blade midnerve inconspicuous, glabrous abaxially ..... **Setaria parviflora**

134. Rhizomes absent

136. Blade apex acute or acuminate

137. Plants annual; blade margins pilose with papillose hairs ..... **Dactyloctenium aegyptium**
137. Plants perennial; blade margins glabrous

138. Ligules ≥1 mm long, ciliate with both short and long hairs; blades green, flat upon drying ..... **Andropogon virginicus**
138. Ligules <1 mm long; ciliate with hairs of uniform length; blades glaucous, involute upon drying ..... **Leptochloa dubia**

136. Blade apex obtuse or mucronate

139. Blade margins sparsely villous basally ..... **Chloris virgata**
139. Blade margins glabrous along the entire length

140. Collars divided ..... **Chloris verticillata**
140. Collars continuous

141. Blades conduplicate, apex obtuse ..... **Chloris cucullata**
141. Blades plane; apex mucronate .... **Chloris andropogonoides**

128. Lowermost sheaths not keeled

142. Sheath margins with hairs, the hairs occasionally restricted to the outer margin

143. Rhizomes present; ligules ciliate with both short and long hairs ... **Panicum virgatum**
143. Rhizomes absent; ligules ciliate with hairs of a uniform length

144. Sheath margins with hairs only near the throat

145. Ligules ≤0.5 mm long; blades green, adaxial surface mostly glabrous, but pilose basally ..... **Steinchisma hians**
145. Ligules >0.5 mm long; blades pale green to glaucous, adaxial surface glabrous or scabrous along entire length ..... **Setaria leucopila**

144. Sheath margins pilose or sparsely hirsute along the entire length

146. Plants annual; sheath margins sparsely hirsute; blades filiform, scabrous ..... **Aristida oligantha**
146. Plants perennial; sheath margins pilose; blades linear, glabrous ..... **Eragrostis superba**

142. Sheath margins glabrous

147. Blade margins with few to many hairs

148. Rhizomes present

149. Ligules <1 mm long; upper and lower collars glabrous; blades <2 mm wide ..... **Bouteloua trifida**
149. Ligules ≥1 mm long; upper collars glabrous, lower collars pubescent; blades ≥2 mm wide ..... **Setaria reverchonii**

148. Rhizomes absent

150. Hairs of the blade margins simple; vernation folded ..... **Bouteloua uniflora**
150. Hairs of the blade margins papillose; vernation rolled

151. Plants glaucous; ligules ≥0.5 mm long ..... **Panicum hallii**
151. Plants green; ligules <0.5 mm long

152. Blade surface glabrous; blade margins glabrous along upper half becoming sparsely pilose with papillose hairs along lower half, plane, not cartilaginous, green ..... **Bouteloua repens**
152. Blade surface scabrous; blade margins pilose with papillose hairs along entire length, cartilaginous, whitish ..... **Urochloa ciliatissima**

147. Blade margins glabrous

153. Rhizomes present

154. Ligules ciliate with both short and long hairs ..... **Panicum virgatum**
154. Ligules ciliate with hairs of a uniform length

155. Culm nodes often reddish-purple; blades lanceolate, adaxial surface sparsely pilose at base .....**Chasmanthium latifolium**
155. Culm nodes not reddish-purple; blades linear, adaxial surface glabrous

156. Leaves distichous; blade margins scabrous ..... **Arundo donax**
156. Leaves not conspicuously distichous; blade margins entire or scabrous

157. Culms erect, reed-like; blade margins entire, apex attenuate, often involute ..... **Phragmites australis**
157. Culms erect or geniculate, not reed-like; blade margins scabrous, apex attenuate, not involute .... **Tripsacum dactyloides**

153. Rhizomes absent

158. Ligules <0.5 mm long ..... **Aristida longespica**
158. Ligules ≥0.5 mm long

159. Culms arising from a hard, knotty base

160. Sheaths glabrous externally; blade adaxial surface scabrous,

occasionally sparsely pilose, vernation folded
..... **Cenchrus myosuroides**
160. Sheaths glabrous or hispid externally with papillose hairs; blade adaxial surface glabrous or hirsute, vernation rolled
..... **Panicum coloratum**

159. Culm base not hard and knotty

161. Blades hispid or pilose abaxially

162. Culms decumbent; sheaths pilose externally with papillose hairs ..... **Leptochloa mucronata**
162. Culms erect or geniculate; sheaths glabrous, hirsute or hispid externally, the hairs, when present, not papillose
..... **Trisetum interruptum**

161. Blades glabrous abaxially

163. Culms branched basally ..... **Aristida adscensionis**
163. Culms unbranched

164. Plants annual; blades >30 cm long, >10 mm wide
..... **Sorghum bicolor**
164. Plants perennial; blades ≤30 cm long, ≤10 mm wide

165. Culms glaucous; sheath margins open; blades glaucous, adaxial surface glabrous to sparsely pilose
..... **Panicum hallii**
165. Culms green; sheath margins overlapping; blades green, adaxial surface scabrous with a fringe of long, soft hairs above the ligule
..... **Pappophorum vaginatum**

127. Collar margins pilose or pubescent

166. Collars hirsute, pilose or pubescent

167. Rhizomes present, short and knotty

168. Lowermost sheaths rounded, not keeled, upper sheath margins overlapping
..... **Eragrostis spectabilis**

168. Lowermost sheaths compressed and keeled, upper sheath margins open
..... **Tridens flavus**

167. Rhizomes absent

169. Plants annual; culms geniculate or decumbent, usually with a pale yellow band of glandular tissue just below the node ..... **Eragrostis barrelieri**
169. Plants perennial; culms erect or geniculate, glandular tissue absent

170. Sheath margins distinct, open, outer margin ciliate ..... **Eragrostis intermedia**
170. Sheath margins distinct, overlapping, outer margin glabrous

171. Culm internodes glabrous; sheaths glabrous externally; blades glabrous abaxially ..... **Pappophorum bicolor**
171. Culm internodes pilose; sheaths glabrous or pilose externally; blades hispid abaxially ..... **Tridens texanus**

166. Collars glabrous

172. Sheaths keeled, at least below the collar

173. Rhizomes or stolons present ..... **Stenotaphrum secundatum**
173. Rhizomes or stolons absent

174. Sheath margins pilose

175. Plants perennial; culms erect, stout; blades glabrous ..... **Andropogon glomeratus**
175. Plants annual; culms geniculate or decumbent, slender; blades scabrous ..... **Cenchrus longispinus**

174. Sheath margins glabrous

176. Sheaths shorter than the adjacent internode

177. Plants perennial; culms ≥75 cm tall; lowermost sheaths hispid externally; blades <2 mm wide ..... **Eragrostis curvula**
177. Plants annual; culms <75 cm tall; lowermost sheaths glabrous externally; blades ≥2 mm wide

178. Glandular tissue present in a ring just below culm nodes; midnerve conspicuous, whitish ..... **Eragrostis cilianensis**
178. Glandular tissue absent; midnerve inconspicuous, green ..... **Eragrostis pectinacea**

176. Sheaths at least as long as the adjacent internode

179. Blades ≤2 mm wide, apex indurate, whitish; midnerve conspicuous, whitish ..... **Erioneuron pilosum**
179. Blades >2 mm wide, apex not indurate; midnerve inconspicuous, not whitish

180. Ligules membranous, brown-colored, margin ciliate; collar margins sparsely villous ..... **Heteropogon contortus**
180. Ligules ciliate; collar margins pilose ..... **Pennisetum ciliare**

172. Sheaths not keeled

181. Ligules ≥0.5 mm long

182. Sheaths laterally compressed

183. Plants perennial; culms >80 cm tall; sheaths purplish at base; blades green to glaucous, adaxial surface pilose at base and behind ligule with hairs to 5 mm long ..... **Andropogon gerardii**
183. Plants annual; culms ≤80 cm tall; sheaths green at base; blades green, adaxial surface glabrous with a few long soft hairs behind ligule ..... **Cenchrus spinifex**

182. Sheaths rounded

184. Rhizomes or stolons present

185. Plants stoloniferous; culms ≤10 cm tall; blade apex attenuate, margins entire, occasionally with a few pustulate hairs; vernation folded ..... **Buchloë dactyloides**
185. Plants rhizomatous; culms >10 cm tall; blade apex acute, margins scabrous ..... **Panicum virgatum**

184. Rhizomes or stolons absent

186. Blade margins hispid or with a few papillose hairs basally

187. Abaxial surface of blade with a few papillose hairs, these often occurring along the midnerve ..... **Bouteloua hirsuta**
187. Abaxial surface of blade glabrous

188. Sheaths shorter than adjacent internodes; blade margins hispid, cartilaginous, whitish ..... **Tragus berteronianus**
188. Sheaths at least as long as adjacent internodes; blade margins mostly glabrous or with a few papillose hairs basally, not cartilaginous, not whitish

189. Plants annual; blades <2 mm wide, adaxial surface scabrous to sparsely strigose ..... **Bouteloua barbata**
189. Plants perennial; blades ≥2 mm wide, adaxial surface glabrous ..... **Panicum hallii**

186. Blade margins entire or strigose

190. Abaxial blade surface pilose ..... **Setaria villosissima**
190. Abaxial blade surface glabrous or scabrous

191. Sheath margins distinct, open

192. Sheaths shorter than djacent internodes, the outer margin ciliate; blade margin strigose ..... **Sporobolus pyramidatus**
192. Sheaths at least as long as adjacent internode, the outer margin glabrous; blade margins glabrous

193. Leaves mostly basal; collar margins villous; blades ≤2 mm wide, green, involute; vernation folded ..... **Aristida purpurea**
193. Leaves cauline; collar margins sparsely villous; blades >2 mm wide, glaucous, plane; vernation rolled ..... **Panicum hallii**

191. Sheath margins distinct, overlapping

194. Adaxial blade surface scabrous with a fringe of long, soft hairs just above the ligule ..... **Pappophorum vaginatum**
194. Adaxial blade surface glabrous or scabrous

195. Sheath outer margin ciliate; collar margins hirsute; blades involute ..... **Eragrostis lugens**
195. Sheath outer margin glabrous; collar margins pilose; blades plane or conduplicate ..... **Sporobolus cryptandrus**

181. Ligules <0.5 mm long

196. Rhizomes or stolons present

197. Plants rhizomatous

198. Leaves distichous; collar hairs simple; blade margins glabrous along entire length ..... **Cynodon dactylon**
198. Leaves not distichous; collar hairs pustulate; blade margins glabrous, but with a few papillose hairs at base..... **Bouteloua curtipendula**

197. Plants stoloniferous

199. Leaves ± distichous; sheaths compressed; blades conduplicate, apex obtuse..... ..... **Stenotaphrum secundatum**
199. Leaves not distichous; sheaths rounded; blades flat, apex acute ..... **Muhlenbergia schreberi**

196. Rhizomes or stolons absent

200. Culms branched basally

201. Lowermost sheath margins entire ..... **Aristida longispica**
201. Lowermost sheath margins sparsely hirsute ..... **Aristida oligantha**

200. Culms unbranched

202. Sheath margins distinct, overlapping

203. Culms viscid ..... **Eragrostis curtipedicellata**
203. Culms not viscid

204. Lowermost sheaths glabrous along the entire length ..... **Eragrostis secundiflora, E. trichodes**
204. Lowermost sheaths pilose near throat ..... **Sporobolus clandestinus, S. compositus**

202. Sheath margins distinct, open

205. Sheaths shorter than the adjacent internode

206. Culms erect; sheaths glabrous or sparsely pilose externally; collar margins with 1 or 2 long, soft hairs on each side ..... **Sporobolus vaginiflorus**
206. Culms geniculate or decumbent; sheaths glabrous externally; collar margins sparsely villous or sparsely ciliate, the hairs numbering more than 1 or 2 on each side

207. Plants annual; blades plane, conduplicate or involute, adaxial surface often sparsely hirsute basally ..... **Bouteloua aristidoides**
207. Plants perennial; blades plane, adaxial surface sparsely pubescent basally ..... **Muhlenbergia schreberi**

205. Sheaths at least as long as the adjacent internode

208. Blades ≥2 mm wide ..... **Sporobolus airoides**
208. Blades <2 mm wide

209. Leaves cauline; blades linear, sparsely pilose ..... **Bouteloua rigidiseta**
209. Leaves mostly basal; blades filiform, glabrous or sparsely hirsute ..... **Tripogon spicatus**

Species Descriptions

1. **AEGILOPS CYLINDRICA** Host — JOINTED GOATGRASS

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 20–80 cm tall, erect or geniculate, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, ciliate. **Collar** continuous, glabrous; margins ciliate. **Auricles** <1 mm long. **Ligules** 0.5 mm long, membranous, truncate; margins entire to slightly erose. **Leaf blades** linear, 4–12 cm long, 1–3(–4) mm wide, plane but often conduplicate when dry, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces sparsely hirsute to glabrous. **Vernation** folded. Occasional along open roadsides and in disturbed areas.

2. **AGROSTIS HYEMALIS** (Walt.) B.S.P. — WINTER BENTGRASS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 15–70 cm tall, erect with the lowermost internode reclined, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 1.5–4 mm long, membranous, obtuse; margins erose or lacerate. **Leaf blades** linear, 3–9 cm long, 0.5–3 mm wide, plane, firm-textured; apex acute;

margins entire; adaxial and abaxial surfaces glabrous. **Vernation** rolled. Common along roadsides, in pastures, and in open woodlands, usually in moist, sandy soil.

3. ANDROPOGON GERARDII Vitman — BIG BLUESTEM

Plants perennial, cespitose. **Rhizomes** short or absent; **stolons** absent. **Culms** 80–200 cm tall, erect, stout, glabrous, not swollen at the base, lateral branching sparse. **Culm nodes** glabrous. **Leaf sheaths** laterally compressed, pubescent or glabrous externally, usually purplish at base; margins distinct, open, entire. **Collar** continuous, often inconspicuous, glabrous; margins pilose. **Auricles** absent. **Ligules** 1–2.5 mm long, membranous, truncate; margins erose, occasionally sparsely ciliate. **Leaf blades** linear, 8–50 cm long, 2–10 mm wide, plane or V-shaped, firm-textured, green or glaucous; apex acuminate; margins entire; adaxial surface mostly glabrous but pilose at base behind and above ligules with hairs to 5 mm long; abaxial surface glabrous; midnerve conspicuous abaxially. **Vernation** rolled. Widespread but rarely abundant, usually associated with other tallgrass species in prairies and woodland openings and along rocky stream margins.

4. ANDROPOGON GLOMERATUS (Walt) B.S.P. — BUSHY BLUESTEM

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 75–150 cm tall, erect, stout, compressed, glabrous, not swollen at the base, lateral branching sparse. **Culm nodes** glabrous. **Leaf sheaths** laterally compressed, keeled, broader than the blades, glabrous externally; margins distinct, open, pilose. **Collar** continuous, glabrous; margins entire or sparsely pilose. **Auricles** absent. **Ligules** 1–2 mm long, membranous, truncate; margins ciliate with occasional long, fine hairs present. **Leaf blades** linear, 5–30 cm long, 3–6(–8) mm wide, plane to conduplicate, firm-textured; apex tapering to a sharp point; margins entire; adaxial and abaxial surfaces glabrous. **Vernation** folded. Very common in low, moist sites such as stream and pond margins, seepage areas, and ditches.

5. ANDROPOGON VIRGINICUS L. — BROOMSEDGE BLUESTEM

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 50–100 cm tall, erect, stout, glabrous, not swollen at the base, lateral branching sparse. **Culm nodes** glabrous. **Leaf sheaths** rounded, keeled just below the collar, the lowermost sheaths compressed and keeled, broader than the blades, glabrous externally; margins distinct, open, entire, occasionally the outer margins ciliate. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 1–2 mm long, membranous, truncate; margins ciliate with both long and short hairs. **Leaf blades** linear, 10–20 cm long, 2–5 mm wide, plane or conduplicate, firm-textured; apex acute; margins entire; adaxial surface glabrous or pilose basally; abaxial surface glabrous. **Vernation** folded. Widespread in east Texas, especially on disturbed sites; reported from only a few counties in the Hill Country.

6. ARISTIDA ADSCENSIONIS L. — SIXWEEKS THREEAWN

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 10–50(–80) cm tall, erect or geniculate, the outermost culms of a tuft decumbent, firm, glabrous, not swollen at the base, freely branched at the base. **Culm nodes** glabrous; leaf sheath rounded, often much shorter than the adjacent culm internodes, scabrous externally; margins distinct, open, hyaline. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 0.5 mm long, a fringe of hairs. **Leaf blades** linear, 5–20 cm long, 1–3 mm wide, plane to involute, firm-textured; apex acute; margins entire; adaxial surface scabrous to finely hispid; abaxial surface glabrous. **Vernation** rolled. Widespread on dry, rocky slopes and plains in west and south Texas and the panhandle, extending into the westernmost counties of the Hill Country.

7. **ARISTIDA LONGESPICA** Poir. — SLIMSPIKE THREEAWN

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 20–60(–80) cm tall, erect or geniculate, wiry, glabrous, not swollen at the base, freely branched at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally, the lowermost sheaths often hispid externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire or with a few long, soft hairs. **Auricles** absent. **Ligules** <0.5 mm long, ciliate with a minute, membranous base. **Leaf blades** filiform, 5–12 cm long, 0.5–1 mm wide, plane or involute, firm-textured; apex attenuate; margins entire; adaxial and abaxial surfaces scabrous. **Vernation** rolled. Occasional along roadsides, in fields, and woodland openings, usually in sandy soil.

8. **ARISTIDA OLIGANTHA** Michx. — OLDFIELD THREEAWN

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 15–80 cm tall, erect or geniculate, wiry, glabrous, not swollen at the base, freely branched at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, sparsely hirsute. **Collar** continuous, glabrous; margins entire or with a few long, soft hairs. **Auricles** absent. **Ligules** <0.5 mm long, ciliate with a minute, membranous base. **Leaf blades** filiform, 10–25 cm long, 1–2 mm wide, plane, firm-textured; apex attenuate, involute; margins entire; adaxial and abaxial surfaces scabrous. **Vernation** rolled. Common and widespread on disturbed, usually sandy soils.

9. **ARISTIDA PURPUREA** Nutt. — PURPLE THREEAWN

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 25–70(–90) cm tall, erect, slender, glabrous, not swollen at the base, sparsely branched at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous or scabrous or puberulent externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins villous. **Auricles** absent. **Ligules** 0.5 mm long, a fringe of hairs. **Leaf blades** linear, 3–18 cm long, 1–2 mm wide, involute, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces glabrous or scabrous. **Vernation** folded. Widespread and abundant along roadsides and other disturbed sites.

10. **ARUNDO DONAX** L. — GIANT CANE

Plants perennial, forming large clumps. **Rhizomes** short, thick, knotty; **stolons** absent. **Culms** 2–6(–10) m tall, erect, reed-like, robust, tough, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaves** distichous. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** to 1 mm long, ciliate with a minute, membranous base. **Leaf blades** linear, 30–60 cm long, 40–70 mm wide, plane, firm-textured; apex acuminate; margins scabrous; adaxial and abaxial surfaces glabrous. **Vernation** rolled. Common along ditches, culverts, drainages, and other moist sites.

11. **AVENA FATUA** L. — WILD OATS

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 30–150 cm tall, erect or geniculate, firm, thick, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous, occasionally sparsely hispid externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 2–5 mm long, membranous, whitish, decurrent on either side as sheath margins, obtuse to acute; margins erose. **Leaf blades** linear, 10–45 cm long, 3–15 mm wide, plane, firm-textured; apex acute; margins entire, occasionally sparsely hispid; adaxial and abaxial surfaces glabrous or scabrous. **Vernation** rolled. Common along roadsides, cultivated fields, and disturbed sites.

We have found no vegetative characters that can reliably distinguish this species from *A. sativa*.

12. AVENA SATIVA L. — CULTIVATED OATS

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 30–150 cm tall, erect or geniculate, firm, thick, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous, occasionally sparsely hispid externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 2–5 mm long, membranous, whitish, decurrent on either side as sheath margins, obtuse to acute; margins erose. **Leaf blades** linear, 10–45 cm long, 3–15 mm wide, plane, firm-textured; apex acute; margins entire, occasionally sparsely hispid; adaxial and abaxial surfaces glabrous or scabrous. **Vernation** rolled. A common spring crop species that is widespread in the Hill Country.

We have found no vegetative characters that can reliably distinguish this species from *A. fatua*.

13. BOTHRIOCHLOA BARBINODIS (Lag.) Herter — CANE BLUESTEM

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 60–120 cm tall, erect or geniculate, firm, glabrous, not swollen at the base. **Culm nodes** villous with hairs 1–3 mm long. **Leaf sheaths** rounded, glabrous or sparsely pilose externally; margins distinct, open, entire, occasionally the outer margins ciliate. **Collar** divided, glabrous; margins entire. **Auricles** absent. **Ligules** 1–2 mm long, membranous, obtuse; margins erose or lacerate. **Leaf blades** linear, 25–30 cm long, 2–7 mm wide, plane, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces glabrous; midnerve conspicuous abaxially. **Vernation** rolled. Common along roadsides and on rocky or gravelly slopes.

14. BOTHRIOCHLOA EDWARDSIANA (Gould) Parodi — MERRILL BLUESTEM

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 35–65 cm tall, erect or geniculate, slender, glabrous, not swollen at the base. **Culm nodes** glabrous or densely pubescent below, glabrous above. **Leaf sheaths** rounded, glabrous externally;.0 margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 1–1.5 mm long, membranous, obtuse; margins erose. **Leaf blades** filiform, 10–25 cm long, 1–2(–3.5) mm wide, plane, firm-textured, pruinose; apex acute; margins entire distally, ciliate basally; adaxial and abaxial surfaces glabrous. **Vernation** rolled. Uncommon in rocky soils of grasslands.

15. BOTHRIOCHLOA HYBRIDA (Gould) Gould — HYBRID BLUESTEM

Plants perennial, forming small clumps. **Rhizomes** and **stolons** absent. **Culms** 30–80 cm tall, erect, firm, glabrous, not swollen at the base, freely branched above the base. **Culm nodes** antrorsely pubescent. **Leaf sheaths** rounded, glabrous externally, green or glaucous; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 1–2 mm long, membranous, truncate; margins fimbriate. **Leaf blades** linear, 8–25(–30) cm long, 2–4(–5) mm wide, plane, firm-textured; apex acute; margins entire, sparsely ciliate basally; adaxial surface glabrous, sparsely hirsute basally; abaxial surface glabrous. **Vernation** rolled. Often abundant along roadsides, in pastures, and on rangeland.

16. BOTHRIOCHLOA ISCHAEMUM (L.) Keng — KING RANCH BLUESTEM

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 30–50(–100) cm tall, erect or decumbent, firm, glabrous, not swollen at the base. **Culm nodes** antrorsely pubescent, glabrate with age. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** to 1 mm long, membranous, truncate; margins erose. **Leaf blades** linear, 10–20 cm long, 2–5 mm wide, plane, firm-textured; apex attenuate; margins entire; adaxial surface sparsely hispid with papillose hairs; abaxial surface glabrous. **Vernation** folded. Widespread and abundant along roadsides, field margins, and opther disturbed sites.

17. BOTHRIOCHLOA LAGUROIDES (DC.) Herter — SILVER BLUESTEM

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 35–120 cm tall, erect or somewhat geniculate, firm, glabrous, not swollen at the base. **Culm nodes** glabrous or pubescent. **Leaf sheaths** slightly laterally compressed, keeled near collar, glabrous externally; margins distinct, open, villous. **Collar** continuous, glabrous; margins entire or sparsely villous. **Auricles** absent. **Ligules** 1–3 mm long, membranous, obtuse to truncate; margins erose. **Leaf blades** linear, 8–25 cm long, 3–6(–8) mm wide, plane or weakly keeled, firm-textured; apex attenuate; margins entire; adaxial and abaxial surfaces glabrous. **Vernation** rolled. Common along roadsides, in grasslands, and along woodland margins.

18. BOUTELOUA ARISTIDOIDES (Kunth) Griseb. — NEEDLE GRAMA

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 6–50 cm tall, geniculate, the outermost culms of a tuft decumbent, weak, slender, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, usually much shorter than the adjacent culm internodes, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins sparsely villous. **Auricles** absent. **Ligules** <0.5 mm long, a fringe of hairs. **Leaf blades** linear, 2–7 cm long, 1–2 mm wide, plane or conduplicate or involute, thin; apex acute; margins entire; adaxial surface glabrous often sparsely hirsute basally; abaxial surface glabrous. **Vernation** folded. Occasional on dry, rocky slopes, along washes, and on gravelly sites.

19. BOUTELOUA BARBATA Lag. — SIXWEEKS GRAMA

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 6–50 cm tall, erect or geniculate, the outermost culms of a tuft decumbent, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins sparsely villous. **Auricles** absent. **Ligules** 0.5–1 mm long, membranous, truncate; margins ciliate. **Leaf blades** linear, 2–7 cm long, 1(–3) mm wide, plane or involute, thin; apex acute; margins entire with some papillose hairs basally; adaxial surface scabrous or sparsely strigose, sparsely hirsute just above ligules; abaxial surface glabrous. **Vernation** folded. Occasional in grasslands and along roadsides and other disturberd sites, usually in sandy soils. Treated as *Chondrosum barbatum* (Lag.) W. Clayton by Shaw (2012).

20. BOUTELOUA CURTIPENDULA (Michx.) Torr. — SIDEOATS GRAMA

Plants perennial, cespitose. **Rhizomes** present or absent; **stolons** absent. **Culms** 50–100 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous or hirsute externally; margins distinct, open, entire, hyaline. **Collar** continuous, glabrous; margins entire with a few papillose hairs. **Auricles** absent. **Ligules** <0.5 mm long, membranous, truncate; margins erose, ciliate. **Leaf blades** linear, 5–30 cm long, 2–7 mm wide, plane, firm-

textured; apex attenuate; margins entire with some papillose hairs basally; adaxial and abaxial surfaces glabrous. **Vernation** rolled. Widespread and abundant in grasslands, woodland borders, and along roadsides.

21. BOUTELOUA HIRSUTA Lag. — HAIRY GRAMA

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 15–40 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally or glabrous with the lowermost sheath sparsely pilose; margins distinct, open, entire. **Collar** continuous, glabrous; margins pilose. **Auricles** absent. **Ligules** 0.5–1 mm long, membranous, truncate; margins ciliate. **Leaf blades** linear, 5–12 cm long, 1–2 mm wide, plane or slightly involute, thin; apex attenuate; margins entire with a few papillose hairs basally; adaxial surface glabrous; abaxial surface glabrous with very few papillose hairs basally along the midnerve. **Vernation** rolled. Widespread and common in grasslands and on open, rocky slopes. Treated as *Chondrosum hirsutum* (Lag.) Kunth by Shaw (2012).

22. BOUTELOUA REPENS (Kunth) Scribn. & Merr. — SLENDER GRAMA

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 20–45 cm tall, erect or geniculate, weak, slender, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally; margins entire. **Collar** continuous, glabrous; margins distinct, open, entire. **Auricles** absent. **Ligules** <0.5 mm long, membranous, truncate; margins ciliate. **Leaf blades** linear, 5–16 cm long, 1–3 mm wide, plane, thin; apex acute, folded; margins entire distally, sparsely pilose with papillose hairs basally; adaxial and abaxial surfaces glabrous. **Vernation** rolled. Primarily a south Texas species that occurs in a few Hill Country counties along roadsides or on rangeland.

23. BOUTELOUA RIGIDISETA (Steud.) Hitchc. — TEXAS GRAMA

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 10–50 cm tall, erect, weak, slender, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins ciliate. **Auricles** absent. **Ligules** <0.5 mm long, a fringe of hairs. **Leaf blades** linear, 4–12(–17) cm long, 1–2 mm wide, plane or slightly involute, firm-textured; apex attenuate; margins entire; adaxial and abaxial surfaces sparsely pilose. **Vernation** rolled. Common in grasslands, open woodlands, and along roadsides.

24. BOUTELOUA TRIFIDA Thurb. — RED GRAMA

Plants perennial, cespitose. **Rhizomes** often present on older plants, short; **stolons** absent. **Culms** 10–30(–40) cm tall, erect, wiry, often with a reddish tint, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally, often with a reddish tint; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** < 0.5 mm long, a fringe of hairs. **Leaf blades** linear, 4–8 cm long, 1–1.5 mm wide, plane or conduplicate or convolute, thin; apex acute; margins entire with one or two long hairs basally, these occasionally papillose; adaxial surface glabrous with very few long hairs basally; abaxial surface glabrous. **Vernation** folded. Common on rocky hillsides, in grasslands, and disturbed sites. Treated as *Chondrosum trifidum* (Thurb.) W. Clayton by Shaw (2012).

25. BOUTELOUA UNIFLORA Vasey — NEALLEY GRAMA

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. Culms 35–50 cm tall, erect, slender, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** <0.5 mm long, a fringe of hairs. **Leaf blades** linear, 2–10 cm long, 1–2 mm wide, plane or involute, firm-textured; apex acute; margins entire with a few long, soft hairs; adaxial surface glabrous with a few long, soft hairs basally; abaxial surface glabrous. **Vernation** folded. Frequent in rocky, limestone soils.

26. BROMUS CATHARTICUS Vahl — RESCUEGRASS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 50–80 cm tall, erect or geniculate, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, pilose or densely puberulent externally, rarely glabrous; margins closed to within a few centimeters of the ligules, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 2–5 mm long, membranous, acute; margins erose. **Leaf blades** linear, 10–30 cm long, 5–12 mm wide, plane, firm-textured, often with a yellowish band immediately above the ligule; apex acute; margins entire; adaxial and abaxial surfaces glabrous or hirsute; midnerve conspicuous abaxially. **Vernation** folded. Common and abundant in late winter and spring along roadsides, field margins, vacant lots, and other disturbed sites. Treated as *Ceratochloa cathartica* (Vahl.) Herter by Shaw (2012).

27. BROMUS JAPONICUS Thunb. — JAPANESE BROME

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 30–60 cm tall, erect or geniculate, firm, glabrous, not swollen at the base. **Culm nodes** retrorsely pubescent. **Leaf sheaths** rounded, retrorsely pilose externally; margins entire. **Collar** continuous, glabrous; margins closed to within a few centimeters of the throat, entire. **Auricles** absent. **Ligules** 0.5–1.5 mm long, membranous, obtuse; margins erose or ciliate. **Leaf blades** linear, 5–15 cm long, 2–7 mm wide, plane, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces pilose or puberulent. **Vernation** rolled. Common and weedy along roadsides and in other disturbed sites.

28. BROMUS PUBESCENS Muhl. ex Willd. — CANADA BROME

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 70–140 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** pubescent. **Leaf sheaths** rounded, open, lower sheaths pilose externally, upper sheaths pubescent; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 0.5–2 mm long, membranous, truncate; margins erose, occasionally sparsely ciliate. **Leaf blades** linear, 10–30 cm long, 5–10 mm wide, plane, firm-textured; apex acute; margins entire; adaxial surface glabrous, less frequently sparsely hirsute; abaxial surface glabrous. **Vernation** rolled. Occasional along streams and in moist woodlands. Treated as *Bromopsis pubescens* (Muhl. *ex* Willd.) Holub by Shaw (2012).

29. BROMUS SECALINUS L. — RYE BROME

Plants annual, solitary or cespitose. **Rhizomes** and **stolons** absent. **Culms** 30–90 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** retrorsely pubescent. **Leaf sheaths** rounded, glabrous or sparsely pilose externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 1–2 mm long, membranous, truncate; margins erose. **Leaf blades** linear, 10–25 cm long, 3–8 mm wide, plane, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces glabrous or scabrous, occasionally pilose. **Vernation** rolled. Common along roadsides and in disturbed sites.

30. BROMUS TECTORUM L. — DOWNY BROME; CHEATGRASS

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 25–60 cm tall, erect or geniculate, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, pubescent externally; margins entire. **Collar** continuous, narrow, pubescent; margins closed to within a few centimeters of the ligules, entire. **Auricles** absent. **Ligules** 1–2.5 mm long, membranous, acute; margins erose or lacerate. **Leaf blades** linear, 5–12 cm long, 2–6 mm wide, plane, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces pubescent. **Vernation** rolled. Common on heavily grazed rangeland, along roadsides, and on other open, disturbed sites.

31. BROMUS TEXENSIS (Shear) Hitchc. — TEXAS BROME

Plants annual, solitary or cespitose. **Rhizomes** and **stolons** absent. **Culms** 40–75 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** pubescent. **Leaf sheaths** rounded, pubescent externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 1–2 mm long, membranous, truncate; margins erose. **Leaf blades** linear, 10–40 cm long, 3–7 mm wide, plane, thin, soft; apex acute; margins entire; adaxial and abaxial surfaces pubescent. **Vernation** rolled. Uncommon in the shade of thickets and oak mottes. Treated as *Bromopsis texensis* (Shear) Holub by Shaw (2012).

32. BUCHLOË DACTYLOIDES (Nutt.) Engelm. — BUFFALOGRASS

Plants perennial, mat-forming. **Rhizomes** absent; stolons present with alternating elongated and bunched internodes. **Culms** 5–10 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, entire, hyaline. **Collar** continuous, glabrous; margins pilose. **Auricles** absent. **Ligules** 0.5 mm long, a fringe of hairs. **Leaf blades** linear, 2–12 (rarely –20) cm long, 1–2.5 mm wide, plane, firm-textured; apex attenuate; margins entire, occasionally with papillose hairs; adaxial surface glabrous or sparsely hispid, occasionally with papillose hairs; abaxial surfaces glabrous or sparsely hispid. **Vernation** folded. A common species in grasslands and other open sites.

33. CENCHRUS LONGISPINUS (Hack.) Fernald — LONGSPINE SANDBUR

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 10–90 cm tall, geniculate or decumbent, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** laterally compressed, keeled, glabrous externally; margins distinct, open, pilose. **Collar** continuous, glabrous; margins ciliate. **Auricles** absent. **Ligules** 0.5–2 mm long, ciliate with a minute, membranous base. **Leaf blades** linear, 6–20 cm long, 3–7 mm wide, plane, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces scabrous. **Vernation** folded. A common species of the High Plains reported from a few Hill Country counties on disturbed sites.

34. CENCHRUS MYOSUROIDES Kunth — BIG SANDBUR

Plants perennial, solitary or forming large clusters. **Rhizomes** and **stolons** absent. **Culms** 70–200 cm tall, erect, firm, stout, glabrous, arising from a hard, knotty, subrhizomatous base. **Culm nodes** glabrous, slightly swollen. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 0.5–1 mm long, membranous, truncate; margins ciliate with hairs 1–2 mm long. **Leaf blades** linear, 12–40 cm long, 4–13 mm wide, plane, firm-textured; apex acute; margins entire; adaxial surface scabrous, occasionally sparsely pilose; abaxial surface glabrous. **Vernation** folded. Occasional along roadsides and on disturbed sites in a few Hill Country counties.

35. CENCHRUS SPINIFEX Cav. — COMMON SANDBUR

Plants annual, solitary or forming small clumps. **Rhizomes** and **stolons** absent. **Culms** 8–80 cm tall, erect or geniculate, the outermost culms of a clump decumbent, firm, glabrous, not swollen at the base, often rooting at the lower nodes. **Culm nodes** glabrous. **Leaf sheaths** laterally compressed, glabrous or sparsely pilose externally; margins distinct, open, entire, hyaline. **Collar** continuous, glabrous; margins sparsely ciliate. **Auricles** absent. **Ligules** <0.5 mm long, membranous, truncate; margins ciliate with hairs 0.5–1 mm long. **Leaf blades** linear, 2–18 cm long, 2–6 mm wide, plane, firm-textured; apex acute; margins entire or scaberulous; adaxial surface glabrous with a few long, soft hairs behind the ligules; abaxial surface glabrous. **Vernation** folded. Abundant and widespread, especially on sandy soils.

36. CHASMANTHIUM LATIFOLIUM (Michx.) H.O. Yates — CREEK-OATS

Plants perennial, cespitose. **Rhizomes** short, hard, knotty; stolons absent. **Culms** 50–150 cm tall, erect or geniculate, firm, glabrous, not swollen at the base. **Culm nodes** glabrous, often reddish-purple. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 0.5–1 mm long, ciliate with a minute, membranous base. **Leaf blades** lanceolate, 9–20 cm long, 10–20 mm wide, plane, firm-textured; apex acuminate; margins entire; adaxial surface glabrous, sparsely pilose basally; abaxial surface glabrous. **Vernation** rolled. Widespread and abundant in moist woodlands and along shaded stream banks.

37. CHLORIS ANDROPOGONOIDES E. Fourn. — SLIMSPIKE WINDMILL-GRASS

Plants perennial, cespitose. **Rhizomes** absent; **stolons** short or absent. **Culms** 10–40 cm tall, erect or geniculate, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** slightly laterally compressed laterally, weakly keeled, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** to 1 mm long, membranous, truncate; margins erose, occasionally sparsely ciliate. **Leaf blades** linear, 5–20 cm long, 2–4 mm wide, plane, firm-textured; apex mucronate; margins entire; adaxial surface glabrous or scabrous, sparsely pilose basally; abaxial surface glabrous or scabrous. **Vernation** folded. Occasional along roadsides, in open pastures and lawns.

As noted by Barkworth et al. (2007), *C. andropogonoides*, *C. cucullata*, and *C. verticillata* often form mixed populations in central Texas that include many apparent hybrids and introgressants that combine the morphological characteristics of their parents, making assignment to one species difficult. These plants were recognized as *C. subdolichostachya* Muller by Gould (1975).

38. CHLORIS CUCULLATA Bisch. — HOODED WINDMILL-GRASS

Plants perennial, cespitose. **Rhizomes** absent; stolons short or absent. **Culms** 15–60 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** laterally compressed, keeled, glabrous externally; margins distinct, open, entire, wide, papery. **Collar** continuous, glabrous, yellowish; margins entire. **Auricles** absent. **Ligules** 0.5–1 mm long, membranous, truncate; margins ciliate. **Leaf blades** linear, 3–20 cm long, 2–4 mm wide, tightly conduplicate, firm-textured; apex obtuse; margins entire; adaxial and abaxial surfaces glabrous or scabrous. **Vernation** folded. Common and widespread along roadsides and other disturbed sites, especially on sandy soils.

See the discussion of hybridization under *C. andropogonoides*.

39. CHLORIS VERTICILLATA Nutt. — TUMBLE WINDMILL-GRASS

Plants perennial, cespitose. Rhizomes and stolons absent. Culms 14–50 cm tall, erect or geniculate or decumbent; firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** laterally compressed, keeled, glabrous externally; margins distinct, open, entire, hyaline. **Collar** divided, glabrous; margins entire. **Auricles** absent. **Ligules** 1–2 mm long, membranous, truncate; margins ciliate, often with a few long hairs at the edges. **Leaf blades** linear, 2–15 cm long, 1–3 mm wide, conduplicate, firm-textured; apex obtuse or mucronate; margins entire, often whitish; adaxial and abaxial surfaces glabrous or scabrous. **Vernation** folded; along roadsides, lawns, parks and disturbed sites in heavy sand or gravelly soils.

See the discussion of hybridization under *C. andropogonoides*.

40. CHLORIS VIRGATA Sw. — FEATHER WINDMILL-GRASS; SHOWY CHLORIS

Plants annual, cespitose. **Rhizomes** absent; **stolons** short or absent. **Culms** 50–100 cm tall, geniculate or decumbent, firm, glabrous, not swollen at the base. **Culm nodes** glabrous; leaf sheath rounded, keeled, glabrous externally, occasionally pilose near the throat; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 0.5–1 mm long, membranous, truncate; margins ciliate. **Leaf blades** linear, 10–30 cm long, 2–6 mm wide, plane or conduplicate, firm-textured; apex obtuse or mucronate; margins entire, sparsely villous basally; adaxial surface glabrous, sparsely villous basally; abaxial surface glabrous. **Vernation** folded. Common and widespread on disturbed sites, especially along roadsides.

41. COELORACHIS CYLINDRICA (Michx.) Nash — CAROLINA JOINT-TAIL

Plants perennial, solitary or forming small clusters. **Rhizomes** short, knotty; **stolons** absent. **Culms** 30–100 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, weakly keeled, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 0.5–1 mm long, membranous, truncate; margins erose, ciliate. **Leaf blades** linear, 8–30 cm long, 1.5–4 mm wide, plane or conduplicate, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces glabrous; midnerve and some secondary nerves conspicuous, scabrous. **Vernation** folded. Infrequent in grasslands and along woodland margins.

42. CYNODON DACTYLON (L.) Pers. — BERMUDAGRASS

Plants perennial, mat-forming. **Rhizomes** present, elongate; **stolons** present. **Culms** 10–50 cm tall, geniculate, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaves** distichous. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, entire. **Collar** continuous, narrow, glabrous; margins entire with a few long hairs. **Auricles** absent. **Ligules** <0.5 mm long, membranous, truncate; margins ciliate. **Leaf blades** linear, 3–8(–14) cm long, 1–3(–4) mm wide, plane or conduplicate, firm-textured, often glaucous; apex obtuse; margins entire; adaxial surface glabrous or scabrous; abaxial surface glabrous. **Vernation** rolled. Common and widespread in lawns and pastures, frequent along roadsides and on other disturbed sites.

43. DACTYLOCTENIUM AEGYPTIUM (L.) Willd. — DURBAN CROWFOOTGRASS

Plants usually annual, cespitose, or less often perennial and mat-forming. **Rhizomes** absent; **stolons** absent or present. **Culms** 10–60 cm tall, erect or geniculate, the outermost culms of a clump decumbent, weak, glabrous, not swollen at the base, often rooting at the lower nodes. **Culm nodes**

glabrous. **Leaf sheaths** laterally compressed, keeled, glabrous externally, occasionally with a few papillose hairs on the keel just below the collar; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** ±0.5 mm long, membranous, truncate; margins sparsely ciliate. **Leaf blades** linear, 3–25 cm long, 2–8 mm wide, plane or conduplicate, firm-textured; apex acuminate; margins pilose with papillose hairs; adaxial and abaxial surfaces glabrous. **Vernation** folded. Common on disturbed sites in a few Hill Country counties.

44. DESMAZERIA RIGIDA (L.) Tutin — FERN GRASS

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 4–10(–18) cm tall, erect or geniculate, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, entire, upper margins thin, hyaline. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 1.5–4 mm long, membranous, decurrent on either side as sheath margins, obtuse; margins lacerate. **Leaf blades** linear, 2–8(–12) cm long, 1–4 mm wide, plane, soft; apex acute; margins entire; adaxial surface glabrous or scabrous; abaxial surface glabrous. **Vernation** folded. Occasional along roadsides, in lawns, and on disturbed sites in the eastern Hill Country.

45. DICHANTHELIUM ACUMINATUM (Sw.) Gould & C.A. Clark — HAIRY PANICGRASS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 20–70(–90) cm tall, erect, firm, distally pubescent, not swollen at the base. **Culm nodes** pubescent. **Leaf sheaths** rounded, glabrous or pilose externally; margins distinct, open, pubescent or ciliate. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 2–4(–6) mm long, a fringe of hairs, typically with a band of short hairs below a band of long hairs or the long hairs restricted to the sides of the band of short hairs. **Leaf blades** linear, 3–9(–15) cm long, 5–12 mm wide, plane, firm-textured; apex acute; margins entire, glabrous or ciliate; adaxial and abaxial surfaces pilose or hispid, less frequently glabrous. **Vernation** rolled. A common but variable species that occurs in a wide variety of habitats.

No attempt has been made to distinguish vegetatively among the four subspecies recognized by Shaw (2012).

46. DICHANTHELIUM OLIGOSANTHES (Schult.) Gould — FEW-FLOWERED PANICGRASS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 15–84 cm tall, erect, firm, glabrous to densely puberulent, not swollen at the base. **Culm nodes** pubescent. **Leaf sheaths** rounded, pilose with papillose hairs, occasionally glabrous; margins distinct, open, ciliate. **Collar** continuous, glabrous, less frequently pubescent; margins entire, occasionally sparsely villous. **Auricles** absent. **Ligules** 1–4 mm long, a fringe of hairs. **Leaf blades** lanceolate, 3–14 cm long, 3–12(–15) mm wide, plane, firm-textured; apex acute; margins entire with few papillose hairs; adaxial surface glabrous; abaxial surface glabrous or puberulent, occasionally tomentose. **Vernation** rolled. Common in a variety of habitats. Treated as *Panicum oligosanthes* Schult. by Correll and Johnston (1970).

47. DICHANTHELIUM PEDICELLATUM (Vasey) Gould — CEDAR PANICGRASS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 20–70 cm tall, erect or geniculate, firm, distally puberulent, arising from a hard, knotty base. **Culm nodes** pubescent. **Leaf sheaths** rounded, glabrous or pilose externally; margins distinct, open, entire, ciliate near the throat. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** to 1 mm long, ciliate with a minute, membranous base. **Leaf blades** lanceolate, 4–12 cm long, 3–8 mm wide, plane, firm-

textured; apex acuminate; margins entire; adaxial surface glabrous or sparsely pilose with appressed hairs, typically with a few papillose hairs basally; abaxial surface glabrous or sparsely pilose with appressed hairs. **Vernation** rolled. Occasional on limestone slopes and in oak woodlands. Treated as *P. pedicellatum* Vasey by Correll and Johnston (1970).

48. DICHANTHELIUM SPHAEROCARPON (Ell.) Gould — ROUND-FRUITED PANICGRASS

Plants perennial, solitary or forming small clumps. **Rhizomes** and **stolons** absent. **Culms** 20–80 cm tall, geniculate or decumbent, firm, glabrous, not swollen at the base. **Culm nodes** antrorsely pubescent. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, pubescent. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** absent or if present, to 1 mm long and ciliate. **Leaf blades** lanceolate, cordate at the base, 3–7 cm long, 7–14 mm wide, plane, firm-textured; apex acute; margins entire, undulate, cartilaginous, whitish, ciliate basally; adaxial and abaxial surfaces glabrous. **Vernation** rolled. Primarily an east Texas species but occurring on dry, open sites and along roadsides in a few Hill Country counties. Treated as *Panicum sphaerocarpon* Elliott by Correll and Johnston (1970).

49. DICHANTHIUM ANNULATUM (Forssk.) Stapf — KLEBERG BLUESTEM

Plants perennial, cespitose. **Rhizomes** absent; **stoloniferous culms** often present. **Culms** 70–100 cm tall, erect or decumbent, firm, glabrous, not swollen at the base. **Culm nodes** pubescent. **Leaf sheaths** rounded, shorter than the adjacent culm internodes, glabrous externally; margins distinct, open, entire. **Collar** continuous, sparsely pubescent; margins entire. **Auricles** absent. **Ligules** ±1 mm long, membranous, hyaline; margins; margins erose. **Leaf blades** linear, 6–25 cm long, 3–6 mm wide, plane, firm-textured; apex acute; margins entire; adaxial surface glabrous or sparsely hispid with papillose hairs; abaxial surface glabrous. **Vernation** rolled. Occasional along roadsides and in pastures in the eastern Hill Country counties.

50. DIGITARIA CALIFORNICA (Benth.) Henrard — CALIFORNIA COTTONTOP

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 50–100 cm tall, erect, firm, glabrous, arising from a hard, knotty, subrhizomatous base covered with densely pubescent, scale-like leaves. **Culm nodes** glabrous. **Leaf sheaths** rounded, lower sheaths villous externally, upper sheaths glabrous or sparsely pubescent externally; margins distinct, open, lower sheath margins entire, upper sheath margins sparsely ciliate. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 1–3 mm long, membranous, truncate; margins erose. **Leaf blades** linear, 2–12 cm long, 2–5 mm wide, plane, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces glabrous. **Vernation** folded. Common along roadsides and in open grasslands.

We have found no vegetative characters that can be used to reliably distinguish among *D. californica*, *D. insularis*, and *D. patens*.

51. DIGITARIA CILIARIS (Retz.) Koeler — SOUTHERN CRABGRASS

Plants annual, mat-forming. **Rhizomes** and **stolons** absent. **Culms** 10–30 cm tall, decumbent or prostrate, weak, glabrous, not swollen at the base, often rooting at the lower nodes. **Culm nodes** glabrous. **Leaf sheaths** rounded, keeled, pilose externally with papillose hairs; margins distinct, open, entire. **Collar** continuous, occasionally divided, glabrous; margins pilose. **Auricles** absent. **Ligules** 0.5–2.5 mm long, membranous, truncate; margins erose. **Leaf blades** linear, 3–10 cm long, 5–10 mm wide, plane, firm-textured; apex acute; margins entire, undulate, white-colored; adaxial and abaxial surfaces glabrous or sparsely pilose with papillose hairs. **Vernation** rolled. A

common and widespread species of disturbed sites.

We have found no vegetative characters that can be used to reliably distinguish between *D. ciliaris* and *D. sanguinalis*.

52. DIGITARIA COGNATA (Schult.) Pilg — FALL WITCHGRASS

Plants perennial, solitary or forming small clumps. **Rhizomes** present or absent; **stolons** absent. **Culms** 30–80 cm tall, erect, firm, glabrous, arising from a hard, knotty, subrhizomatous base. **Culm nodes** glabrous. **Leaf sheaths** rounded, pilose externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** ±0.5 mm long, membranous, truncate; margins erose. **Leaf blades** linear, 2–8 cm long, 2–6 mm wide, plane, firm-textured; apex acute; margins entire, undulate; adaxial surface sparsely pubescent, sparsely pilose basally; abaxial surface, sparsely pubescent. **Vernation** rolled. Common on dry, rocky or sandy soils. Treated as Leptoloma cognatum (Schult.) Chase by Correll and Johnston (1970) and Gould (1975).

As circumscribed here, *D. cognata* includes *D. pubiflora* (Vasey) Wipff, which was recognized by Shaw (2012). The taxa cannot be distinguished vegetatively.

53. DIGITARIA INSULARIS (L.) Mez ex Ekman — SOURGRASS

Plants perennial, cespitose. **Rhizomes** present, short, forming a hard, knotty base; **stolons** absent. **Culms** 70–150 cm tall, erect, firm, glabrous. **Culm nodes** glabrous. **Leaf sheaths** rounded, lower sheaths pubescent externally, upper sheaths glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 1–3 mm long, membranous, truncate; margins erose. **Leaf blades** linear, 12–40 cm long, 4–10 mm wide, plane, firm-textured; apex acuminate; margins entire; adaxial and abaxial surfaces glabrous. **Vernation** rolled. Occasional along ditches and in moist or wet depressions in a few Hill Country counties.

We have found no vegetative characters that can be used to reliably distinguish among *D. californica*, *D. insularis*, and *D. patens*.

54. DIGITARIA PATENS (Swallen) Henrard — TEXAS COTTONTOP

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 40–90 cm tall, erect, firm, glabrous, arising from a hard, knotty base covered with densely pubescent, scale-like leaves. **Culm nodes** glabrous. **Leaf sheaths** rounded, pubescent externally; margins distinct, open, entire or sparsely ciliate. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 1–4 mm long, membranous, truncate; margins erose. **Leaf blades** linear, 4–12 cm long, 2–3 mm wide, plane, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces glabrous. **Vernation** folded. Occasional on disturbed sites, usually over sandy soils.

We have found no vegetative characters that can be used to reliably distinguish among *D. californica*, *D. insularis*, and *D. patens*.

55. DIGITARIA SANGUINALIS (L.) Scop. — HAIRY CRABGRASS

Plants annual, mat-forming. **Rhizomes** and **stolons** absent. **Culms** 10–30 cm tall, decumbent or prostrate, weak, glabrous, not swollen at the base, often rooting at the lower nodes. **Culm nodes** glabrous. **Leaf sheaths** rounded, keeled, pilose externally with papillose hairs; margins distinct, open, entire. **Collar** continuous, occasionally divided, glabrous; margins pilose. **Auricles**

absent. **Ligules** 0.5–2.5 mm long, membranous, truncate; margins erose. **Leaf blades** linear, 3–10 cm long, 5–10 mm wide, plane, firm-textured; apex acute; margins entire, undulate, white-colored; adaxial and abaxial surfaces glabrous with a few basal papillose hairs or wholly pilose with papillose hairs. **Vernation** rolled. Common on disturbed sites and in lawns and gardens, especially in the eastern Hill Country counties.

We have found no vegetative characters that can be used to reliably distinguish between *D. ciliaris* and *D. sanguinalis*.

56. ECHINOCHLOA COLONA (L.) Link — JUNGLE RICE; AWNLESS BARNYARD GRASS

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 10–70 cm tall, erect or geniculate; or decumbent, weak, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** slightly laterally compressed laterally, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** absent. **Leaf blades** linear, 5–30 cm long, 3–6(–9) mm wide, plane, thin, often colored with purple bands, V-shaped markings, or blotches; apex acute; margins entire; adaxial and abaxial surfaces glabrous. **Vernation** rolled. Common weedy grass of ditches, lawns, gardens and other moist, disturbed sites.

57. ECHINOCHLOA CRUS-GALLI (L.) P. Beauv. — BARNYARD GRASS

Plants annual, cespitose. **Rhizomes** and **stolons** absent. Culms 30–100(–200) cm tall, erect or geniculate, the outermost culms of a tuft decumbent, firm, glabrous, not swollen at the base. **Culm nodes** glabrous, slightly swollen. **Leaf sheaths** slightly laterally compressed laterally, glabrous externally; margins distinct, open, entire. **Collar** continuous, wide, glabrous; margins entire. **Auricles** absent. **Ligules** absent. **Leaf blades** linear, 10–40 cm long, 5–25 mm wide, plane or V-shaped, firm-textured; apex acute; margins serrulate, sparsely pilose near base, often undulate; adaxial surface glabrous, occasionally sparsely hirsute; abaxial surface glabrous. **Vernation** rolled. A common weedy species of moist, disturbed sites.

58. ECHINOCHLOA CRUS-PAVONIS (Kunth) Schult. — GULF COAST BARNYARD GRASS

Plants annual, solitary or forming small clumps. **Rhizomes** and **stolons** absent. **Culms** 30–100(–200) cm tall, geniculate or decumbent, firm, stout, glabrous, not swollen at the base. **Culm nodes** glabrous, slightly swollen. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** absent. **Leaf blades** linear, 15–40 cm long, 7–20 mm wide, plane, firm-textured, green or purplish; apex acute; margins entire; adaxial and abaxial surfaces glabrous. **Vernation** rolled. Common in roadside ditches and other wet, disturbed sites.

59. ELEUSINE INDICA (L.) Gaertn. — GOOSEGRASS

Plants annual, cespitose. **Rhizomes** absent; **stolons** occasionally present. **Culms** 15–70 cm tall, erect or geniculate, the outermost culms of a clump decumbent, firm, slightly compressed, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** laterally compressed, keeled, glabrous or sparsely villous externally; margins distinct, open, entire, often sparsely hispid basally. **Collar** continuous, glabrous; margins pilose. **Auricles** absent. **Ligules** 0.5–1 mm long, membranous, truncate; margins entire or lacerate. **Leaf blades** linear, 5–35 cm long, 3–8 mm wide, plane or conduplicate, keeled at the base, firm-textured; apex obtuse; margins entire, occasionally sparsely villous; adaxial surface glabrous, occasionally sparsely villous basally; abaxial surface glabrous. **Vernation** rolled. Common on disturbed sites.

60. ELYMUS CANADENSIS L. — CANADA WILDRYE

Plants perennial, cespitose. **Rhizomes** short or usually absent; **stolons** absent. **Culms** 80–150 cm tall, typically decumbent, firm, tough, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally, occasionally pilose; margins distinct, open, antrorsely ciliate. **Collar** continuous, broad, glabrous; margins entire. **Auricles** present on both sides, to 2.5 mm long. **Ligules** 0.5–1 mm long, membranous, truncate; margins entire. **Leaf blades** linear, 15–40 cm long, 4–12 mm wide, plane or conduplicate, firm-textured; apex attenuate; margins entire; adaxial surface glabrous, scabrous, or pubescent; abaxial surface glabrous. **Vernation** rolled. Common in woodlands and other shaded sites and along stream banks.

61. ELYMUS VIRGINICUS L. — VIRGINIA WILDRYE

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 60–120 cm tall, erect or geniculate, occasionally decumbent, firm, tough, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally, occasionally pilose; margins distinct, open, entire. **Collar** continuous, broad, glabrous, often purplish; margins entire. **Auricles** present, to 3.0 mm long. **Ligules** 0.5–1 mm long, membranous; margins truncate, erose, ciliolate. **Leaf blades** linear, 10–30 cm long, 5–15 mm wide, plane, firm-textured; apex acute; margins entire; adaxial surface glabrous, scabrous, or pubescent; abaxial surface glabrous. **Vernation** rolled. Widespread in woodlands and grasslands. Plants referred to *E. glabriflorus* (Vasey ex L.H. Dewey) Scribn. & C.R. Ball and *E. macgregorii* R. Brooks & J.J.N. Campb. by Shaw (2012) will key out here.

62. ERAGROSTIS BARRELIERI Daveau — MEDITERRANEAN LOVEGRASS

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 25–55 cm tall, geniculate or decumbent, firm, glabrous, usually with a yellowish band of glandular tissue just below each node, not swollen at the base. **Culm nodes** glabrous, branched at the lower nodes. **Leaf sheaths** rounded, shorter than the adjacent culm internodes, glabrous externally; margins distinct, open, entire. **Collar** continuous, pilose; margins pilose. **Auricles** absent. **Ligules** <0.5 mm long, a fringe of hairs. **Leaf blades** linear, 3–10 cm long, 1–5 mm wide, plane, firm-textured; apex acute, involute; margins entire; adaxial and abaxial surfaces glabrous or sparsely pilose. **Vernation** folded. Widespread along roadsides and on disturbed sites.

63. ERAGROSTIS CILIANENSIS (All.) Vignolo ex Janch. — STINKGRASS

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 10–60 cm tall, erect or geniculate, firm, glabrous, usually with a ring of glands just below each node, not swollen at the base, freely branched at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, weakly keeled, shorter than the adjacent culm nodes, glabrous externally, usually with glands on the keel and some of the other nerves; margins distinct, open, entire. **Collar** continuous, glabrous; margins pilose. **Auricles** absent. **Ligules** to 1 mm long, a fringe of hairs. **Leaf blades** linear, 10–20 cm long, 2.5–7 mm wide, plane or V-shaped, firm-textured; apex acute; margins entire or pilose with papillose hairs; adaxial surface glabrous with glands on the midnerve; abaxial surface glabrous; midnerve conspicuous, white. **Vernation** rolled. Widespread along roadsides and on disturbed sites.

64. ERAGROSTIS CURTIPEDICELLATA Buckley — GUMMY LOVEGRASS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 20–60 cm tall, erect or geniculate, firm, glabrous, viscid, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous or pilose externally, often viscid; margins distinct, overlapping, entire, occasionally

one or both margins ciliate. **Collar** continuous, glabrous; margins pilose. **Auricles** absent. **Ligules** <0.5 mm long, a fringe of hairs. **Leaf blades** linear, 5–10 cm long, 2–4 mm wide, plane or involute, typically bending sharply (±90°) away from the culm, firm-textured; apex attenuate; margins entire; adaxial surface glabrous, sparsely villous immediately above the ligules; abaxial surface glabrous. **Vernation** rolled. Along roadsides, field margins, and openings in oak woodlands.

65. ERAGROSTIS CURVULA (Schrad.) Nees — WEEPING LOVEGRASS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 75–150 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, keeled, shorter than the adjacent culm internodes, glabrous externally, the lowest sheaths hispid; margins distinct, open, entire. **Collar** continuous, glabrous; margins pilose. **Auricles** absent. **Ligules** 0.5–1 mm long, a fringe of hairs. **Leaf blades** linear or filiform, 20–30 cm long, 1–1.5 mm wide, involute, firm-textured; apex attenuate; margins entire; adaxial and abaxial surfaces scabrous. **Vernation** rolled. Occasional along roadsides and in fields.

66. ERAGROSTIS INTERMEDIA Hitchc. — PLAINS LOVEGRASS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 50–90 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, inner margins entire, outer margins ciliate, occasionally both margins ciliate. **Collar** continuous, pilose; margins pilose. **Auricles** absent. **Ligules** <0.5 mm long, a fringe of hairs. **Leaf blades** linear, 15–20 cm long, 2–3 mm wide, plane, firm-textured; apex attenuate; margins entire; adaxial surface glabrous, sparsely hirsute at the base and behind the ligules; abaxial surface glabrous. **Vernation** rolled. Widespread in grasslands, along roadsides, and in other disturbed sites.

67. ERAGROSTIS LUGENS Nees — MOURNING LOVEGRASS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 35–70 cm tall, erect or geniculate, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally; margins distinct, overlapping, entire. **Collar** continuous, glabrous; margins hirsute. **Auricles** absent. **Ligules** ±1 mm long, a fringe of hairs. **Leaf blades** linear, 8–20 cm long, 1–2 mm wide, involute, firm-textured; apex attenuate; margins entire; adaxial and abaxial surfaces glabrous. **Vernation** rolled. Primarily a species of snady soils in the coastal plain; found in a few Hill Country counties.

68. ERAGROSTIS PECTINACEA (Michx.) Nees ex Steud. — SPREADING LOVEGRASS

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 30–55 cm tall, erect or geniculate, the outermost culms of a clump decumbent, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, weakly keeled, shorter than the adjacent culm internodes, glabrous externally; margins entire. **Collar** continuous, glabrous; margins distinct, open, pilose. **Auricles** absent. **Ligules** <0.5 mm, ciliate. **Leaf blades** linear or lanceolate, 8–18 cm long, 3–7 mm wide, plane or conduplicate, firm-textured; apex acute; margins entire; adaxial surface scabrous; abaxial surface glabrous. **Vernation** rolled. Occasional along roadsides and in fields and gardens.

69. ERAGROSTIS REPTANS (Michx.) Nees — CREEPING LOVEGRASS

Plants annual, mat-forming. **Rhizomes** and **stolons** absent. **Culms** 5–10(–20) cm tall, decumbent or prostrate, wiry, pubescent, less frequently glabrous, not swollen at the base, often

rooting at the lower nodes. **Culm nodes** pubescent. **Leaf sheaths** rounded, shorter than the adjacent culm internodes, pubescent externally, less frequently glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** <0.5 mm long, a fringe of hairs. **Leaf blades** linear, 1–4 cm long, 1–2 mm wide, plane or conduplicate, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces pubescent, less frequently glabrous. **Vernation** rolled. Occasional along the margins of ponds and streams and marshy sites, often frequent and abundant on the exposed beds following periods of drought, mostly along the eastern and southern margins of the Hill Country. Treated as *Neeragrostis reptans* (Michx.) Nicora in Gould (1975).

70. ERAGROSTIS SECUNDIFLORA J. Presl — RED LOVEGRASS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 30–75 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally; margins distinct, overlapping, entire, occasionally the outer margins or both margins pilose. **Collar** continuous, glabrous; margins pilose. **Auricles** absent. **Ligules** <0.5 mm long, a fringe of hairs. **Leaf blades** linear, 10–15 cm long, 2–2.5 mm wide, plane or involute, firm-textured; apex acute; margins entire; adaxial surface glabrous with a few long, soft hairs basally; abaxial surface glabrous. **Vernation** rolled. Common on sandy, disturbed soils.

We have found no vegetative characters that can be used to reliably distinguish between this taxon and *E. trichodes*.

71. ERAGROSTIS SPECTABILIS (Pursh) Steud. PURPLE LOVEGRASS

Plants perennial, cespitose. **Rhizomes** short, knotty; **stolons** absent. **Culms** 40–75 cm tall, erect or geniculate, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, pilose externally; margins distinct, overlapping, entire, occasionally the outer margin or both margins pilose. **Collar** continuous, pilose; margins pilose. **Auricles** absent. **Ligules** <0.5 mm long, a fringe of hairs. **Leaf blades** linear, 15–40 cm long, 3–7 mm wide, plane, firm-textured; apex attenuate; margins entire; adaxial surface glabrous or pilose, often glabrous, pilose basally; abaxial surface glabrous or pilose. **Vernation** rolled. Occasional along roadsides, in abandoned fields, and woodland openings, usually on sandy soil.

72. ERAGROSTIS SUPERBA Peyr. WILMANN LOVEGRASS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 20–120 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, pilose. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** to 1 mm long, a fringe of hairs. **Leaf blades** linear, 10–40 cm long, 2–10 mm wide, plane or involute, firm-textured; apex attenuate; margins entire; adaxial and abaxial surfaces glabrous. **Vernation** rolled. Common along roadsides and in pastures and occasional in oak woodlands in a few Hill Country counties.

73. ERAGROSTIS TRICHODES (Nutt.) Alph. Wood — SAND LOVEGRASS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 70–110 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally, occasionally hirsute; margins distinct, overlapping, entire, occasionally villous. **Collar** continuous, glabrous; margins pilose. **Auricles** absent. **Ligules** <0.5 mm long, a fringe of hairs. **Leaf blades** linear, 15–40 cm long, 1–8 mm wide, plane with an involute tip, firm-textured; apex

acute; margins entire; adaxial surface glabrous, sparsely hirsute at the base; abaxial surface glabrous. **Vernation** rolled. Common in grasslands and open woodlands over sandy soil.

We have found no vegetative characters that can be used to reliably distinguish between this taxon and *E. secundiflora.*

74. ERIOCHLOA CONTRACTA Hitchc. PRAIRIE CUPGRASS

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 30–70 cm tall, erect or geniculate, firm, glabrous or puberulent, not swollen at the base. **Culm nodes** puberulent. **Leaf sheaths** rounded, puberulent externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** to 1 mm long, ciliate with a minute, membranous base. **Leaf blades** linear, 3–20 cm long, 2–7 mm wide, plane, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces puberulent. **Vernation** rolled. Occasional in fields, roadsides, and other disturbed sites.

75. ERIOCHLOA SERICEA (Scheele) Munro ex Vasey — TEXAS CUPGRASS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 50–100 cm tall, erect, firm, pubescent, not swollen at the base. **Culm nodes** antrorsely pubescent with very short hairs. **Leaf sheaths** rounded, pubescent externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** to 1 mm long, ciliate with a minute, membranous base. **Leaf blades** linear, 10–30 cm long, 2–3 mm wide, plane or involute, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces pubescent, less frequently glabrous. **Vernation** rolled. Common in grasslands and oak-juniper woodlands throughout the Hill Country.

76. ERIONEURON PILOSUM (Buckley) Nash — HAIRY TRIDENS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 10–30 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, keeled, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins pilose. **Auricles** absent. **Ligules** <0.5 mm long, a fringe of hairs. **Leaf blades** linear, 2–8(–11) cm long, 1–2 mm wide, plane, often conduplicate, firm-textured; apex abruptly acute, hardened; margins entire, cartilaginous, white-colored; adaxial surface glabrous, occasionally antrorsely pilose; abaxial surface glabrous; midnerve conspicuous abaxially, white-colored. **Vernation** folded. Widespread and frequent on rocky hillsides, in oak-juniper woodlands, and along roadsides.

77. FESTUCA VERSUTA Beal — TEXAS FESCUE

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 50–100 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 0.5–1 mm long, membranous, truncate; margins entire. **Leaf blades** linear, 10–40 long, 2–5 mm wide, plane or loosely folded, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces glabrous. **Vernation** rolled. Uncommon in shaded woodlands along the eastern margin of the Hill Country.

78. GLYCERIA STRIATA (Lam.) Hitchc. — FOWL MANNAGRASS

Plants perennial, cespitose. **Rhizomes** short or absent; **stolons** absent. **Culms** 40–90 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded,

glabrous or scaberulous externally; margins closed to within a few centimeters of the ligules, entire. **Collar** continuous, often inconspicuous, glabrous; margins entire. **Auricles** absent. **Ligules** 1.5–4 mm long, membranous, truncate; margins erose. **Leaf blades** linear, 5–25 cm long, 2–8 mm wide, plane or V-shaped, firm-textured; apex obtuse, often prow-shaped; margins entire; adaxial surface glabrous, often scaberulous, median lines present; abaxial surface glabrous. **Vernation** folded. Occasional along stream margins and ponds.

79. HETEROPOGON CONTORTUS (L.) P. Beauv. — TANGLEHEAD

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 20–80 cm tall, erect, firm, glabrous, not swollen at the base, lateral branches basally fastigiate. **Culm nodes** glabrous. **Leaf sheaths** laterally compressed, keeled, glabrous externally, occasionally sparsely villous; margins distinct, open, entire. **Collar** continuous, glabrous; margins sparsely villous. **Auricles** absent. **Ligules** to 1 mm long, membranous, often brown-colored, truncate; margins ciliate. **Leaf blades** linear, 6–20 cm long, 4–6(–10) mm wide, plane, occasionally conduplicate, firm-textured; apex acute; margins entire, often sparsely pilose basally with papillose hairs; adaxial and abaxial surfaces glabrous. **Vernation** folded. Locally common in grasslands and on rocky slopes, usually on sandy soil.

80. HILARIA BELANGERI (Steud.) Nash — CURLYMESQUITE

Plants perennial, cespitose. **Rhizomes** absent; **stolons** wiry. **Culms** 10–30 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** villous, the lower nodes densely so. **Leaf sheaths** rounded, glabrous externally; margins distinct, overlapping, entire. **Collar** continuous, glabrous; margins entire, often with 1 or 2 long hairs on both sides. **Auricles** absent. **Ligules** 0.5–1 mm long, membranous, obtuse or truncate; margins lacerate. **Leaf blades** linear, 5–20 cm long, 1–3 mm wide, plane or arcuate, firm-textured; apex acuminate; margins entire; adaxial and abaxial surfaces glabrous or sparsely pilose with papillose hairs. **Vernation** rolled. Widespread in grasslands.

81. HILARIA MUTICA (Buckley) Benth. — TOBOSAGRASS

Plants perennial, cespitose. **Rhizomes** short, thick, scaly; **stolons** absent. **Culms** 30–70 cm tall, erect, wiry, glabrous, not swollen at the base. **Culm nodes** pubescent. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, ciliate toward the ligule. **Collar** continuous, glabrous; margins villous. **Auricles** absent. **Ligules** 1–2 mm long, membranous, obtuse or truncate; margins lacerate. **Leaf blades** linear, 5–10 cm long, 2–5 mm wide, plane or involute, firm-textured to somewhat stiff; apex acute; margins entire; adaxial surface glabrous or scabrous, typically with a few long hairs at the base immediately above the ligule; abaxial surface glabrous or scabrous. **Vernation** rolled. A west Texas species occurring in open grasslands in a few southern and western Hill County counties. Treated as *Pleuraphis mutica* Buckley by Shaw (2012).

82. HOPIA OBTUSA (Kunth) Zuloaga & Morrone — VINE MESQUITE

Plants perennial. **Rhizomes** absent; **stolons** elongate, wiry, with swollen, villous nodes. **Culms** 20–60 cm tall, erect, firm, glabrous, arising from a hard, knotty base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally, occasionally hispid; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire, occasionally sparsely pilose. **Auricles** absent. **Ligules** 1–2 mm long, membranous, obtuse; margins entire or lacerate. **Leaf blades** linear, 5–20 cm long, 2–7 mm wide, plane or involute, firm-textured, glaucous; apex attenuate; margins entire; adaxial surface glabrous, often sparsely pilose basally; abaxial surface glabrous. **Vernation** rolled. Widespread on

stream banks, in roadside ditches, and in moist depressions on rangeland. Treated as *Panicum obtusum* Kunth by Correll and Johnston (1970) and Gould (1975).

83. HORDEUM MURINUM L. — SMOOTH BARLEY

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 15–60 cm tall, erect or geniculate, thick, succulent, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous or sparsely hispid externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** present, to 2 mm long. **Ligules** 0.5–1 mm long, membranous, truncate; margins erose. **Leaf blades** linear, 6–15 cm long, 3–8 mm wide, plane, weak; apex acute; margins entire; adaxial surface glabrous or hispid; abaxial surface glabrous. **Vernation** folded. Uncommon as a weed of disturbed sites in the Hill Country. Treated as *Critesion murinum* (L.) Á. Löve by Shaw (2012).

84. HORDEUM PUSILLUM Nutt. — LITTLE BARLEY

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 10–40 cm tall, erect or geniculate, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, pubescent externally, less frequently glabrous; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent or, when present, minute, <1 mm long. **Ligules** <0.5 mm long, membranous, truncate; margins entire. **Leaf blades** linear, 3–12 cm long, 2–4(–5) mm wide, plane or U-shaped, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces pubescent, occasionally glabrous. **Vernation** rolled. Widespread and abundant along roadsides and in other disturbed areas. Treated as *Critesion pusillum* (Nutt.) Á. Löve by Shaw (2012).

85. HORDEUM VULGARE L. — BARLEY

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 50–120 cm tall, erect, thick, succulent, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** present, ±2 mm long. **Ligules** 1–3 mm long, membranous, truncate; margins entire. **Leaf blades** linear, 10–45 cm long, 5–15 mm wide, plane, firm-textured; apex acute; margins entire; adaxial surface scabrous; abaxial surface glabrous. **Vernation** rolled. Occasionally found as an escape from cultivation.

86. LEERSIA ORYZOIDES (L.) Sw. — RICE CUTGRASS

Plants perennial, cespitose. **Rhizomes** slender, elongate, not scaly; **stolons** absent. **Culms** 80–150 cm tall, erect or geniculate, firm, glabrous, not swollen at the base. **Culm nodes** retrorsely pubescent. **Leaf sheaths** rounded, retrorsely scabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous or sparsely pubescent; margins entire, occasionally sparsely pubescent. **Auricles** absent. **Ligules** 0.5–2 mm long, membranous, firm-textured, truncate; margins erose. **Leaf blades** linear; 8–30 cm long, 7–10 mm wide, plane, firm-textured; apex acute; margins serrate; adaxial and abaxial surfaces retrorsely scabrous; midnerve serrate abaxially. **Vernation** rolled. Occasional in saturated soils along Hill Country streams.

87. LEPTOCHLOA DUBIA (Kunth) Nees — GREEN SPRANGLETOP

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 30–110 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally, the lowermost sheaths compressed, keeled and pilose externally; margins distinct, open, entire. **Collar** continuous, glabrous, occasionally sparsely pubescent; margins entire. **Auricles**

absent. **Ligules** <0.5 mm long, membranous, truncate; margins ciliate. **Leaf blades** linear, 5–30 cm long, 2–6(–8) mm wide, plane, becoming involute upon drying, firm-textured, glaucous; apex acute; margins entire; adaxial and abaxial surfaces glabrous or scabrous or sparsely pilose. **Vernation** folded. Common in grasslands and on rockly slopes.

88. LEPTOCHLOA FUSCA (L.) Kunth — BEARDED SPRANGLETOP

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 50–100 cm tall, erect or geniculate, the outermost culms of a clump decumbent, firm, somewhat succulent, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, the lowermost weakly keeled, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 2–6 mm long, membranous, hyaline, acute; margins lacerate, with lateral lobes resembling auricles. **Leaf blades** linear, 5–35 cm long, 2–7 mm wide, plane or involute, firm-textured; apex attenuate; margins entire; adaxial and abaxial surfaces glabrous or sparsely hispid. **Vernation** rolled. Occasional along stream and pond margins. Includes plants treated as *L. fascicularis* (Lam.) A. Gray and *L. uninervia* (J. Presl) Hitchc. & Chase by Correll and Johnston (1970) and Gould (1975).

89. LEPTOCHLOA PANICEA (Retz.) Ohwi — RED SPRANGLETOP

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 10–80 cm tall, decumbent, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, pilose externally with papillose hairs; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 1–2 mm long, membranous, truncate; margins erose, occasionally sparsely ciliate. **Leaf blades** linear, 2–20 cm long, 1–10 mm wide, plane, firm-textured; apex attenuate; margins entire; adaxial and abaxial surfaces pilose, often with papillose hairs basally. **Vernation** rolled. A common weedy species of disturbed sites. Treated as *L. filiformis* (Lam.) P. Beauv. by Correll and Johnston (1970) and Gould (1975).

90. LIMNODEA ARKANSANA (Nutt.) L.H. Dewey — OZARKGRASS

Plants annual, solitary or forming small clumps. **Rhizomes** and **stolons** absent. **Culms** 20–60 cm tall, erect, weak, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous or hispid externally; margins distinct, open, entire. **Collar** continuous, oblique, glabrous; margins entire. **Auricles** absent. **Ligules** 1–2 mm long, membranous, obtuse; margins lacerate. **Leaf blades** linear, 3–12 cm long, 2–8 mm wide, plane, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces hispid, less frequently glabrous. **Vernation** folded. Common in open woodlands and riparian areas.

91. LOLIUM PERENNE L. — PERENNIAL RYEGRASS

Plants annual or short-lived perennials, cespitose. **Rhizomes** and **stolons** absent. **Culms** 25–70 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, reddish at the base, glabrous externally; margins distinct, open, entire, the upper margins thin, hyaline. **Collar** continuous, narrow, glabrous; margins entire. **Auricles** present, to 5 mm long. **Ligules** 0.5–1.5 mm long, membranous, decurrent on both sides, obtuse; margins entire. **Leaf blades** linear, 5–20 cm long, 2–10 mm wide, plane, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces glabrous. **Vernation** folded. Common and widespread as an escape on disturbed sites.

92. LOLIUM TEMULENTUM L. — DARNEL RYEGRASS

Plants annual, solitary or cespitose. **Rhizomes** and **stolons** absent. **Culms** 30–70 cm tall, erect or decumbent, weak, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, entire. **Collar** continuous, narrow, glabrous; margins entire. **Auricles** present, to 1 mm long. **Ligules** 0.5–1 mm long, membranous, truncate; margins lacerate. **Leaf blades** linear, 6–40 cm long, 2–8 mm wide, plane, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces glabrous. **Vernation** rolled. Occasional on disturbed sites and along roadsides.

93. MELICA NITENS (Scribn.) Nutt. ex Piper — THREE-FLOWER MELIC

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 50–120 cm tall, erect, firm, glabrous, arising from a hard, subrhizomatous base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous or scabrous externally, occasionally puberulent externally; margins closed to within a few millimeters of the throat, entire, upper margins thin, hyaline. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 3–6 mm long, membranous, decurrent on both sides, truncate; margins erose or lacerate. **Leaf blades** linear, 10–30 cm long, 3–10(–15) mm wide, plane, firm-textured; apex attenuate; margins entire; adaxial and abaxial surfaces glabrous or scabrous, occasionally puberulent. **Vernation** rolled. Common in open woodlands and canyons.

94. MUHLENBERGIA ARENACEA (Buckley) Hitchc. — EAR MUHLY

Plants perennial, mat-forming. **Rhizomes** slender; **stolons** absent. **Culms** 10–20(–40) cm tall, decumbent, firm, glabrous, striate, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, shorter than the adjacent internodes, glabrous externally; margins distinct, open, entire, upper margins thin, hyaline. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** to 1 mm long with lateral extensions 1–2 mm long appearing as erect auricles, membranous, decurrent on either side, truncate; margins erose or lacerate. **Leaf blades** linear, 1–3(–6) cm long, 0.5–1.5 mm wide, plane or conduplicate or involute, often twisted, firm-textured; apex attenuate; margins entire or scabrous, cartilaginous, white-colored; adaxial and abaxial surfaces glabrous; midnerve conspicuous, whitish. **Vernation** folded. Primarily a species of west Texas but occasional in open grasslands along the eastern margin of the Hill Country.

95. MUHLENBERGIA LINDHEIMERI Hitchc. — LINDHEIMER MUHLY

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 50–100(–150) cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, the lower sheaths laterally compressed and keeled, glabrous externally; margins distinct, open, entire, upper margins thin, hyaline. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 8–15 mm long, membranous, firm and brown at the base, decurrent on both sides, acute; margins lacerate. **Leaf blades** linear, 10–45(–50) cm long, 2–3(–5) mm wide, conduplicate, firm-textured, pale green or glaucous; apex acute, involute upon on drying; margins entire; adaxial surface glabrous or scabrous, occasionally sparsely pubescent; abaxial surface glabrous or scabrous. **Vernation** folded. Common on seepage slopes, in canyons, and along moist roadsides.

96. MUHLENBERGIA PORTERI Scribn. ex Beal — BUSH MUHLY

Plants perennial, solitary or forming small clumps. **Rhizomes** and **stolons** absent. **Culms** 30–100 cm tall, decumbent, wiry, glabrous, occasionally puberulent just below the nodes, arising

from a hard, knotty base. **Culm nodes** numerous, glabrous. **Leaf sheaths** rounded, shorter than the adjacent internodes, glabrous externally; margins distinct, open, entire, upper margins thin, hyaline. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 1–2.5 mm long, membranous, decurrent on either side as sheath margins, truncate; margins lacerate. **Leaf blades** linear, 2–5 cm long, 0.5–2 mm wide, plane or involute, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces scabrous. **Vernation** folded. A west Texas species with sporadic occurrence on rocky slopes in the Hill Country.

97. MUHLENBERGIA REVERCHONII Vasey & Scribn. — SEEP MUHLY

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 40–80 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, scaberulous externally; margins distinct, open, entire. **Collar** continuous, often inconspicuous, glabrous; margins entire. **Auricles** absent. **Ligules** 2–9 mm long, membranous, firm at the base, hyaline distally, acute; margins lacerate. **Leaf blades** filiform, arcuate, 8–35 cm long, 1–2 mm wide, involute, firm-textured; apex attenuate; margins entire; adaxial and abaxial surfaces scaberulous. **Vernation** folded. Common on rocky slopes, often in association with seepage areas.

98. MUHLENBERGIA SCHREBERI Gmel. — NIMBLEWILL

Plants perennial, solitary or forming small clusters. Rhizomes absent; stolons often present, short. **Culms** 10–40(–60) cm tall, decumbent, firm, glabrous, not swollen at the base, often rooting at the lower nodes. **Culm nodes** glabrous. **Leaf sheaths** rounded, shorter than the adjacent internodes, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire, sparsely ciliate. **Auricles** absent. **Ligules** <0.5 mm long, membranous, truncate; margins erose or lacerate, ciliate. **Leaf blades** linear, 3–8 cm long, 1–3(–4) mm wide, plane, firm-textured; apex acute; margins entire; adaxial surface glabrous, sparsely pubescent basally; abaxial surface glabrous. **Vernation** rolled. Common in grasslands, on rocky slopes, and along stream banks.

99. MUHLENBERGIA UTILIS (Torr.) Hitchc. — APAREJOGRASS

Plants perennial, solitary or forming small clumps. **Rhizomes** slender, scaly; **stolons** absent. **Culms** 20–40 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** ±0.5 mm long, membranous, truncate; margins entire or slightly erose. **Leaf blades** filiform, 5–20 cm long, 0.5–1 mm wide, involute, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces glabrous. **Vernation** folded. Occasional along streams and in moist depressions in grasslands.

100. MUHLENBERGIA ×INVOLUTA Swallen — CANYON MUHLY

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 60–140 cm tall, erect, firm, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, the lower sheaths laterally compressed and weakly keeled, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 3–12 mm long, membranous, firm and brown at the base, acute; margins entire or lacerate. **Leaf blades** linear, 10–45 cm long, 2–5 mm wide, conduplicate, firm-textured, apes acute; margins entire; adaxial and abaxial surfaces glabrous. **Vernation** folded. Occasional in rocky prairie openings and canyons.

101. NASSELLA LEUCOTRICHA (Trin. & Rupr.) R.W. Pohl — TEXAS WINTERGRASS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 30–70(–90) cm tall, geniculate, firm, glabrous, not swollen at the base. **Culm nodes** antrorsely pubescent. **Leaf sheaths** rounded, glabrous or pubescent externally; margins distinct, open, pilose or pubescent. **Collar** continuous, pilose; margins pilose. **Auricles** absent. **Ligules** absent or, if present, to 1 mm long, membranous, truncate; margins entire. **Leaf blades** linear, 10–30(–40) cm long, 2–5 mm wide, plane or involute, firm-textured; apex attenuate; margins entire; adaxial and abaxial surfaces strigose. **Vernation** rolled. Abundant in grasslands and along roadsides and other disturbed sites. Treated as *Stipa leucotricha* Trin. & Rupr. by Correll and Johnston (1970) and Gould (1975).

102. PANICUM ANTIDOTALE Retz. — BLUE PANICUM

Plants perennial, solitary or forming small clumps. **Rhizomes** thick, knotted, scaly; **stolons** absent. **Culms** 50–200(–300) cm tall, erect or geniculate, firm, glabrous, glaucous, arising from a hard, knotty base. **Culm nodes** antrorsely pubescent, swollen. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins puberulent. **Auricles** absent. **Ligules** 0.5–1 mm long, ciliate with a minute, membranous base. **Leaf blades** linear, 6–30 cm long, 4–12 mm wide, plane, firm-textured; apex acute; margins entire; adaxial surface glabrous, puberulent basally; abaxial surface glabrous; midnerve conspicuous. **Vernation** rolled. Occasional along roadsides and on disturbed sites.

103. PANICUM CAPILLARE L. — COMMON WITCHGRASS

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 20–80 cm tall, erect or geniculate, firm, glabrous, often antrorsely pubescent toward the nodes, not swollen at the base. **Culm nodes** antrorsely pubescent. **Leaf sheaths** rounded, hispid externally with papillose hairs; margins distinct, open, hispid, often with papillose hairs. **Collar** continuous, broad, pubescent; margins pubescent. **Auricles** absent. **Ligules** 0.5–1 mm long, membranous, truncate; margins ciliate with hairs 0.5–1 mm long. **Leaf blades** linear or lanceolate, 10–25 cm long, 5–15(–25) mm wide, plane, firm-textured; apex acute; margins entire, occasionally pilose with papillose hairs or ciliate; adaxial surface hispid or hirsute, often with papillose hairs present on the lower half of the blade; abaxial surface hispid or hirsute or glabrous; midnerve conspicuous. **Vernation** rolled. Common along roadsides and on other disturbed sites.

104. PANICUM COLORATUM L. — KLEINGRASS

Plants perennial, cespitose. **Rhizomes** short, knotty; **stolons** absent. **Culms** 60–135 cm tall, erect or decumbent, firm, glabrous, not swollen at the base, arising from a hard, knotty base. **Culm nodes** glabrous or puberulent. **Leaf sheaths** rounded, glabrous or hispid externally with papillose hairs; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 0.5–2 mm long, ciliate with a minute, membranous base. **Leaf blades** linear, 3–30 cm long, 2–6(–8) mm wide, plane, firm-textured; apex acute or acuminate; margins entire; adaxial and abaxial surfaces glabrous or hirsute. **Vernation** rolled. Occasional along roadsides and in pastures.

105. PANICUM HALLII Vasey — HALL'S PANICUM

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 20–80 cm tall, erect or geniculate, firm, glabrous, glaucous, not swollen at the base. **Culm nodes** antrorsely pubescent or glabrous. **Leaf sheaths** rounded, glabrous externally or sparsely pilose with papillose hairs; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire, occasionally sparsely villous.

Auricles absent. **Ligules** <0.5 mm long, membranous, truncate; margins ciliate with hairs 1–1.5 mm long. **Leaf blades** linear, 4–30 cm long, 2–10 mm wide, plane, firm-textured, glaucous; apex acute; margins entire, occasionally with very few papillose hairs basally; adaxial surface glabrous or sparsely pilose; abaxial surface glabrous. **Vernation** rolled. Common and widespread in grasslands, woodlands, rangeland, and pastures.

106. PANICUM VIRGATUM L. — SWITCHGRASS

Plants perennial, cespitose. **Rhizomes** scaly; **stolons** absent. **Culms** 60–200(–300) cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous or pubescent. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, entire, often ciliate near the throat. **Collar** continuous, broad, glabrous; margins ciliate, often entire. **Auricles** absent. **Ligules** ±1 mm long, a fringe of hairs, interspersed with long, soft hairs 3–5 mm long. **Leaf blades** linear, 10–60 cm long, 3–15 mm wide, plane, firm-textured; apex acute; margins scabrous; adaxial surface glabrous, often pilose basally; abaxial surface glabrous. **Vernation** rolled. Common on seepage slopes, along river margins, and in swales and ditches.

107. PAPPOPHORUM BICOLOR E. Fourn. — PINK PAPPUSGRASS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 30–80(–100) cm tall, erect or geniculate, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths**, rounded, glabrous externally; margins distinct, overlapping, entire. **Collar** continuous, hirsute; margins pubescent. **Auricles** absent. **Ligules** ±1 mm long, a fringe of hairs. **Leaf blades** linear, 10–20(–30) cm long, 1.5–5 mm wide, plane or involute, firm-textured; apex acute; margins entire; adaxial surface scabrous with a fringe of long, soft hairs immediately above the ligule; abaxial surface glabrous. **Vernation** rolled. Common in grasslands and along roadsides in the southern and western portions of the Hill Country.

108. PAPPOPHORUM VAGINATUM Buckley — WHIPLASH PAPPUSGRASS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 25–90 cm tall, erect or geniculate, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally; margins distinct, overlapping, entire. **Collar** continuous, glabrous; margins entire, glabrous or ciliate. **Auricles** absent. **Ligules** ±1 mm long, a fringe of hairs. **Leaf blades** linear, 10–20(–30) cm long, 2–5 mm wide, plane or involute, firm-textured; apex acuminate; margins entire; adaxial surface scabrous with a fringe of long, soft hairs immediately above the ligule; abaxial surface glabrous. **Vernation** rolled. Occasional in grasslands and along roadsides in the southern and western portions of the Hill Country.

109. PASPALUM DILATATUM Poir. — DALLISGRASS

Plants perennial, cespitose. **Rhizomes** short, knotty; **stolons** absent. **Culms** 15–20 cm tall, erect, firm, glabrous, arising from a hard, knotty base. **Culm nodes** glabrous. **Leaf sheaths** laterally compressed, glabrous externally, the lowermost sheaths hirsute externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 2–4 mm long, membranous, obtuse; margins entire. **Leaf blades** linear, 6–45 cm long, 3–12 mm wide, plane, firm-textured; apex acute; margins entire; adaxial surface glabrous with a few long, soft hairs basally; abaxial surface glabrous. **Vernation** rolled. Common and widespread weed of lawns, roadsides, and disturbed areas.

110. PASPALUM DISTICHUM L. — KNOTGRASS

Plants perennial, mat-forming. **Rhizomes** present; **stolons** absent. **Culms** 8–60 cm tall, decumbent, firm, glabrous, not swollen at the base. **Culm nodes** pubescent. **Leaf sheaths** rounded, weakly keeled, glabrous or pilose externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire with a few soft hairs. **Auricles** absent. **Ligules** 1–2.5 mm long, membranous, obtuse or truncate; margins entire to slightly erose. **Leaf blades** linear, 3–12 cm long, 2–6 mm wide, plane, occasionally folded or convolute, firm-textured; apex acute; margins scabrous; adaxial and abaxial surfaces glabrous. **Vernation** rolled. Common along ponds and river margins in moist or wet soil.

111. PASPALUM PUBIFLORUM Rupr. ex E. Fourn. — HAIRYSEED PASPALUM

Plants perennial, solitary or forming small clumps. **Rhizomes** and **stolons** absent. **Culms** 40–80 cm tall, decumbent, firm, glabrous, not swollen at the base, often rooting at the lower nodes. **Culm nodes** glabrous, often tomentose. **Leaf sheaths** rounded, glabrous externally, the lower sheaths pilose externally with papillose hairs; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 1–3 mm long, membranous, often brownish, truncate; margins entire. **Leaf blades** lanceolate, 6–30 cm long, 6–15 mm wide, plane, firm-textured; apex acute; margins entire; adaxial surface glabrous, sparsely hirsute basally; abaxial surface glabrous. **Vernation** rolled. Widespread in roadside ditches and other low-lying sites.

112. PASPALUM SETACEUM Michx. — THIN PASPALUM

Plants perennial, cespitose. **Rhizomes** short; **stolons** absent. **Culms** 30–80 cm tall, erect, firm, glabrous, arising from a hard, knotty base. **Culm nodes** glabrous, **Leaf sheaths** rounded, sparsely pilose or pubescent externally; margins distinct, open, entire or pilose. **Collar** continuous, pubescent; margins entire or pilose. **Auricles** absent. **Ligules** to 0.5 mm long, membranous, truncate; margins entire. **Leaf blades** linear, 5–35 cm long, 2–20 mm wide, plane, firm-textured; apex acute; margins entire; adaxial surface glabrous with a fringe of long, soft hairs immediately above the ligule, occasionally pubescent; abaxial surface glabrous, occasionally pubescent. **Vernation** folded. Widespread on disturbed sites, especially on sandy soil.

113. PASPALUM URVILLEI Steud. — VASEYGRASS

Plants perennial, cespitose. **Rhizomes** short, knotty; **stolons** absent. **Culms** 100–200 cm tall, erect, firm, arising from a hard, knotty base. **Culm nodes** glabrous. **Leaf sheaths** rounded, the lower sheaths hirsute externally, the upper sheaths glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 3–6 mm long, membranous, obtuse; margins lacerate. **Leaf blades** linear, 10–40 cm long, 4–15 mm wide, plane, firm-textured; apex acute; margins entire; adaxial surface glabrous with a fringe of long, soft hairs immediately above the ligule; abaxial surface glabrous. **Vernation** rolled. Widespread along shorelines, roadside ditches, and other low-lying sites.

114. PENNISETUM CILIARE (L.) Link — BUFFELGRASS

Plants perennial, cespitose. **Rhizomes** present or absent; **stolons** absent. **Culms** 25–100 cm tall, geniculate, wiry, glabrous, arising from a hard, knotty base. **Culm nodes** glabrous, occasionally puberulent. **Leaf sheaths** laterally compressed, keeled, glabrous or sparsely pilose externally;

margins distinct, open, entire. **Collar** continuous, glabrous; margins pilose. **Auricles** absent. **Ligules** 0.5–2 mm long, ciliate with a minute, membranous base. **Leaf blades** linear, 8–30 cm long, 2.5–8 mm wide, plane, firm-textured; apex acute; margins entire; adaxial surface sparsely pilose or pubescent basally, otherwise glabrous; abaxial surface glabrous. **Vernation** rolled. Uncommon on disturbed sites in a few southern and western Hill Country counties. Treated as *Cenchrus ciliaris* L. by Correll and Johnston (1970) and Gould (1975).

115. PHALARIS CAROLINIANA Walt. — CAROLINA CANARYGRASS

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 25–70 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, entire. **Collar** continuous, narrow, glabrous; margins entire. **Auricles** absent. **Ligules** 2–6 mm long, membranous, obtuse; margins erose often appearing dentate. **Leaf blades** linear, 5–20 cm long, 3–7 mm wide, plane, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces glabrous. **Vernation** rolled. Common and widespread on wet or marshy sites.

116. PHRAGMITES AUSTRALIS (Cav.) Trin. ex Steud. — COMMON REED

Plants perennial, solitary or forming large clumps. **Rhizomes** thick; **stolons** absent or present. **Culms** 2–4 m tall, erect, tough, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous margins entire. **Auricles** absent. **Ligules** to 0.5 mm long, ciliate with a minute, membranous base. **Leaf blades** linear, 20–60 cm long, 15–50 mm wide, plane, firm-textured; apex attenuate, often involute; margins entire; adaxial and abaxial surfaces glabrous. **Vernation** rolled. Uncommon along streams; reported from only a few Hill Country counties.

117. POA ANNUA L. — ANNUAL BLUEGRASS

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 6–30 cm tall, erect or geniculate, the outermost culms of a clump decumbent, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally, the lowermost sheaths membranous; margins distinct, open, entire, upper margins thin, hyaline. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 1.5–4 mm long, membranous, decurrent on both sides, obtuse; margins entire or erose. **Leaf blades** linear, 2–14 cm long, 1.5–4 mm wide, plane, firm-textured; apex obtuse , prow-shaped; margins entire; adaxial surface glabrous, median lines present; abaxial surface glabrous. **Vernation** folded. A common weed of lawns and gardens.

118. POA ARACHNIFERA Torr. — TEXAS BLUEGRASS

Plants perennial, cespitose. **Rhizomes** slender, elongate; **stolons** absent. **Culms** 35–50 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 1–4 mm long, membranous, acute; margins entire. **Leaf blades** linear, 7.5–15 long, 1–5 mm wide, plane, less frequently conduplicate, firm-textured; apex acute; margins entire; adaxial surface glabrous; abaxial surface glabrous, scabrous on the midnerve. **Vernation** folded. Widespread in grasslands and along the margins of woodlands.

119. POLYPOGON MONSPELIENSIS (L.) Desf. — RABBITFOOT GRASS

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 8–70 cm tall, erect or geniculate, the outermost culms of a clump decumbent, weak, glabrous, not swollen at the base, often

rooting at the lower nodes. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous or scabrous externally; margins distinct, open, entire, upper margins thin, hyaline. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 3–15 mm long, membranous, decurrent on both sides, acute; margins lacerate. **Leaf blades** linear, 4–16 cm long, 2–8 mm wide, plane, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces scabrous. **Vernation** rolled. Common and widespread along streams and other moist or wet, disturbed sites.

120. POLYPOGON VIRIDIS (A. Gouan) Breistr. — WATER BENTGRASS

Plants perennial, cespitose. **Rhizomes** absent; **stolons** present. Culms 10–50(–70) cm tall, geniculate or decumbent, succulent, glabrous, not swollen at the base, often rooting at the lower nodes. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous or scabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 2–7 mm long, membranous, obtuse; margins lacerate. **Leaf blades** linear, 4–14 cm long, 2–8 mm wide, plane, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces glabrous or scabrous. **Vernation** rolled. Occasional along streams and in roadside ditches. Treated as *Agrostis semiverticillata* (Forssk.) Christ by Correll and Johnston (1970) and Gould (1975).

121. SCHEDONNARDUS PANICULATUS (Nutt.) Trel. — TUMBLEGRASS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 8–50(–70) cm tall, decumbent, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** laterally compressed, keeled, glabrous externally; margins distinct, open, entire, upper margins thin, hyaline. **Collar** continuous or divided, glabrous; margins entire. **Auricles** absent. **Ligules** 1–3.5 mm long, membranous, decurrent on either side as sheath margins, acute; margins entire. **Leaf blades** linear, 2–12 cm long, 0.5–2(–3) mm wide, plane or conduplicate and becoming spirally twisted upon drying, firm-textured; apex acute; margins scabrous, slightly undulate, whitish; adaxial and abaxial surfaces glabrous; midnerve strongly conspicuous abaxially. **Vernation** folded. Common and widespread on disturbed sites.

122. SCHIZACHYRIUM SCOPARIUM (Michx.) Nash — LITTLE BLUESTEM

Plants perennial, cespitose. **Rhizomes** absent or short when present; **stolons** absent. **Culms** 50–200 cm tall, erect, firm, glabrous, often glaucous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** laterally compressed, keeled, glabrous or pubescent or pilose or hirsute externally; margins distinct, open, entire, occasionally pilose near the throat. **Collar** continuous, broad, glabrous; margins entire. **Auricles** absent. **Ligules** 1–3 mm long, membranous, firm-textured, obtuse; margins erose, often appearing dentate. **Leaf blades** linear, 15–30 cm long, 1.5–4(–6) mm wide, plane, firm-textured; apex acute; margins scabrous; adaxial surface glabrous or scabrous, occasionally hispid; abaxial surface glabrous. **Vernation** folded. Widespread and common in grasslands, open woodlands, and along roadsides.

123. SETARIA GRISEBACHII E. Fourn. — GRISEBACH'S BRISTLEGRASS

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 40–80(–100) cm tall, erect or geniculate, slender, glabrous, not swollen at the base, **Culm nodes** hirsute. **Leaf sheaths** rounded, pilose externally; margins distinct, open, pilose. **Collar** continuous, pilose; margins ciliate. **Auricles** absent. **Ligules** ±1mm long, a fringe of hairs. **Leaf blades** linear, 6–20 cm long, 5–13 mm wide, plane, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces hispid. **Vernation** rolled. Uncommon on open, rocky slopes.

124. SETARIA LEUCOPILA (Scribn. & Merr.) K. Schum. — PLAINS BRISTLEGRASS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 25–100 cm tall, erect or geniculate, firm, glabrous, occasionally distally pubescent, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally with a fringe of long hairs just below the collar; margins distinct, open, entire, villous near the throat. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** ±0.5 mm long, membranous, truncate; margins ciliate with hairs 1–2 mm long. **Leaf blades** linear, 8–25 cm long, 2–5 mm wide, plane or conduplicate, firm-textured, pale green or glaucous; apex acute; margins entire; adaxial and abaxial surfaces glabrous or scabrous. **Vernation** rolled. Widespread and common on sites with abundant moisture.

125. SETARIA PARVIFLORA (Poir.) Kerguélen — KNOTROOT BRISTLEGRASS

Plants perennial, cespitose. **Rhizomes** short, knotty; **stolons** absent. **Culms** 30–100 cm tall, erect or geniculate, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, the lowermost sheaths keeled just below the collar, glabrous or scabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** ±1 mm long, a fringe of hairs. **Leaf blades** linear, 6–25 cm long, 2–8 mm wide, plane, firm-textured; apex acuminate; margins entire or scaberulous; adaxial surface glabrous or scaberulous, occasionally with a few long, coarse hairs basally; abaxial surface glabrous or scabrous. **Vernation** rolled. Common and widespread along shorelines, streams, roadside ditches and other moist sites.

126. SETARIA PUMILA (Poir.) Roem. & Schult. — YELLOW FOXTAIL; PIGEONGRASS

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 20–120 cm tall, geniculate, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** laterally compressed, keeled, glabrous externally; margins distinct, open, entire, ciliate near the throat. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** ±1 mm long, ciliate with a minute, membranous base. **Leaf blades** linear, 3–30 cm long, 4–10 mm wide, loosely twisted, firm-textured; apex acute; margins entire; adaxial surface scabrous with long, soft hairs basally; abaxial surface glabrous. **Vernation** rolled. An occasional weed of fields, roadsides, and other disturbed sites.

127. SETARIA REVERCHONII (Vasey) Pilger — REVERCHON BRISTLEGRASS

Plants perennial, cespitose. **Rhizomes** short, scaly, pubescent; **stolons** absent. **Culms** 35–70 cm tall, erect, firm, arising from a hard, knotty base. **Culm nodes** glabrous. **Leaf sheaths** rounded, the lower sheaths sparsely hirsute externally, the upper sheaths glabrous externally; margins distinct, open, entire. **Collar** continuous, the lower collars pubescent, the upper glabrous; margins entire. **Auricles** absent. **Ligules** ±0.5 mm long, membranous, truncate; margins ciliate with hairs 1–2 mm long, often with longer hairs at the edges. **Leaf blades** linear, 4–10(–20) cm long, 2–3 mm wide, plane, involute upon drying, firm-textured; apex acute; margins entire with a few long, soft hairs basally; adaxial surface scabrous; abaxial surface glabrous. **Vernation** rolled. Widespread and common in grasslands, on rocky slopes, and in gravelly soils.

128. SETARIA SCHEELEI (Steud.) Hitchc. — SOUTHWESTERN BRISTLEGRASS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 70–130 cm tall, geniculate, firm, glabrous, not swollen at the base. **Culm nodes** antrorsely puberulent. **Leaf sheaths** rounded, glabrous externally, distally pilose; margins distinct, open, entire, pilose near the throat. **Collar** continuous, pubescent; margins entire, glabrous or ciliate. **Auricles** absent. **Ligules** ± 0.5

mm long, membranous, truncate; margins ciliate with hairs 1–2 mm long. **Leaf blades** linear, 15–30(–50) cm long, 5–18 mm wide, plane or conduplicate, firm-textured; apex acute; margins entire; adaxial surface scabrous and finely pubescent, pilose basally; abaxial surface scabrous and finely pubescent. **Vernation** folded. Common in the shade of woodlands, canyons, and river bottoms.

129. SETARIA VERTICILLATA (L.) P. Beauv. — HOOKED BRISTLEGRASS

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 25–70 cm tall, decumbent, weak, glabrous, not swollen at the base, often rooting at the lower nodes. **Culm nodes** glabrous. **Leaf sheaths** laterally compressed, keeled, glabrous externally; margins distinct, open, inner margins entire, outer margins distally ciliate. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 1–2 mm long, a fringe of hairs. **Leaf blades** linear, 5–30 cm long, 4–16 mm wide, plane; apex acute; margins entire; adaxial and abaxial surfaces glabrous or sparsely hispid. **Vernation** rolled. Occasional in disturbed habitats.

130. SETARIA VILLOSISSIMA (Scribn. & Merr.) K. Schum. — HAIRYLEAF BRISTLEGRASS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 50–100 cm tall, erect or geniculate, firm, glabrous, not swollen at the base. **Culm nodes** glabrous or sparsely pubescent. **Leaf sheaths** rounded, glabrous or hirsute externally; margins distinct, open, entire, hirsute near the throat. **Collar** continuous, glabrous; margins pilose. **Auricles** absent. **Ligules** 1–2 mm long, a fringe of hairs. **Leaf blades** linear, 10–25 cm long, 6–14 mm wide, plane, firm-textured; apex attenuate; margins entire; adaxial and abaxial surfaces pilose or sparsely pilose; midnerve conspicuous abaxially. **Vernation** rolled. Uncommon and apparently restricted to soils derived from granite.

131. SETARIA VIRIDIS (L.) P. Beauv. — GREEN BRISTLEGRASS

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 25–100 cm tall, erect or geniculate, firm, glabrous, not swollen at the base. **Culm nodes** glabrous, the lowermost nodes often hirsute. **Leaf sheaths** slightly laterally compressed laterally, keeled, glabrous externally; margins distinct, open, inner margins entire, outer margins ciliate or pilose. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 1–2 mm long, a fringe of hairs. **Leaf blades** linear, 8–20 cm long, 3–10 mm wide, plane, firm-textured; apex acute; margins entire, undulate; adaxial surface scabrous; abaxial surface glabrous. **Vernation** rolled. A widespread but scattered weed of roadsides, fields, and disturbed sites.

132. SORGHASTRUM NUTANS (L.) Nash — INDIANGRASS

Plants perennial, solitary or forming small clumps. **Rhizomes** short, stout, scaly; **stolons** absent. **Culms** 80–230 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** hispid. **Leaf sheaths** rounded, glabrous or sparsely pilose externally; margins distinct, open, entire, upper margins membranous, continuous with the auricles and ligules. **Collar** continuous, glabrous; margins entire with a few long, soft hairs. **Auricles** present, ±2 mm longer than the ligules, stiff, erect. **Ligules** 2–6 mm long, membranous, indurate when dry, truncate; margins erose, ciliolate. **Leaf blades** linear, 10–50 cm long, 5–10 mm wide, plane, firm-textured, tapered to a narrow base; apex attenuate; margins scabrous; adaxial surface scabrous; abaxial surface glabrous; midnerve conspicuous. **Vernation** rolled. Widespread in open woodlands and along roadsides.

133. SORGHUM BICOLOR (L.) Moench — SORGHUM

Plants annual, solitary. **Rhizomes** and **stolons** absent. **Culms** 80–250(–500) cm tall, erect, stout, succulent, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 1–3 mm long, membranous, truncate; margins ciliate. **Leaf blades** linear, 30–100 cm long, 10–50 mm wide, plane, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces glabrous; midnerve conspicuous, whitish. **Vernation** folded. Cultivated and occasionally found as a waif along roadsides.

134. SORGHUM HALEPENSE (L.) Pers. — JOHNSONGRASS

Plants perennial, cespitose. **Rhizomes** elongate, scaly; **stolons** absent. **Culms** 100–200 cm tall, erect or geniculate, the outermost culms of a clump decumbent, firm, glabrous, not swollen at the base. **Culm nodes** pubescent, less frequently glabrous. **Leaf sheaths** rounded, glabrous externally, occasionally purplish; margins distinct, open, entire. **Collar** continuous, glabrous or pubescent; margins entire, glabrous or ciliate. **Auricles** absent. **Ligules** 1.5–4 mm long, membranous, truncate; margins ciliate. **Leaf blades** linear, 20–90 cm long, 8–20 mm wide, plane, firm-textured; apex acuminate; margins entire, hyaline or white-colored; adaxial surface glabrous, pubescent at the base just behind the ligule; abaxial surface glabrous; midnerve conspicuous, often whitish. **Vernation** rolled. Widespread and abundant along roadsides, field margins, vacant lots, and dother isturbed sites.

135. SPHENOPHOLIS OBTUSATA (Michx.) Scribn. — PRAIRIE WEDGESCALE

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 20–70(–120) cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous or scabrous externally; margins distinct, open, entire. **Collar** divided, often oblique, glabrous; margins entire. **Auricles** absent. **Ligules** 1.5–3 mm long, membranous, obtuse or truncate; margins lacerate. **Leaf blades** linear 4–15 cm long, 2–8 mm wide, plane, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces glabrous or scabrous. **Vernation** rolled. Widespread in moist woodlands, grasslands, and disturbed sites.

136. SPOROBOLUS AIROIDES (Torr.) Torr. — ALKALI SACATON

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 50–150 cm tall, erect, firm, glabrous, arising from a hard, subrhizomatous base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins sparsely pilose. **Auricles** absent. **Ligules** <0.5 mm long, a fringe of hairs. **Leaf blades** linear, 15–45 cm long, 2–6 mm wide, plane or involute, firm-textured; apex acute; margins entire; adaxial surface scabrous, occasionally glabrous; abaxial surface glabrous. **Vernation** folded. A common species of saline falts in south and west Texas; known from a few scattered Hill Country localities on dry, rocky slopes.

137. SPOROBOLUS CLANDESTINUS (Biehler) Hitchc. — HIDDEN DROPSEED

Plants perennial, solitary or forming small clusters. **Rhizomes** and **stolons** absent. **Culms** 60–150 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, overlapping, glabrous externally, the lower sheaths pilose near the throat; margins distinct, overlapping, entire. **Collar** continuous, glabrous; margins pilose. **Auricles** absent. **Ligules** <0.5 mm long, ciliate with a minute, membranous base. **Leaf blades** linear, 10–30 cm long, 1–4 mm wide,

plane or involute, firm-textured; apex acute; margins entire; adaxial surface glabrous, pilose basally; abaxial surface glabrous. **Vernation** rolled. Occasional in sandy soils along roadsides. Treated as a synonym of *S. asper* (Michx.) Kunth by Correll and Johnston (1970).

We have found no vegetative characters that can be used to reliably distinguish between this taxon and *S. compositus*.

138. SPOROBOLUS COMPOSITUS (Poir.) Merr. ROUGH DROPSEED

Plants perennial, solitary or forming small clumps. **Rhizomes** elongate, scaly, or absent; **stolons** absent. **Culms** 60–150 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, overlapping, glabrous externally, the lower sheaths pilose near the throat; margins distinct, overlapping, entire. **Collar** continuous, glabrous; margins pilose. **Auricles** absent. **Ligules** <0.5 mm long, ciliate with a minute, membranous base. **Leaf blades** linear, 10–30 cm long, 1–4 mm wide, plane or involute, firm-textured; apex acute; margins entire; adaxial surface glabrous, pilose basally; abaxial surface glabrous. **Vernation** rolled. Common in grasslands, woodlands, and along roadsides. Treated as *S. asper* (Michx.) Kunth by Correll and Johnston (1970) and Gould (1975).

We have found no vegetative characters that can be used to reliably distinguish between this taxon and *S. clandestinus*.

139. SPOROBOLUS CRYPTANDRUS (Torr.) A. Gray SAND DROPSEED

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 35–120 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally; margins distinct, overlapping, inner margins entire, outer margins ciliate. **Collar** continuous, glabrous; margins pilose. **Auricles** absent. **Ligules** 0.5–1 mm long, a fringe of hairs. **Leaf blades** linear, 8–25 cm long, 2–5 mm wide, plane or conduplicate, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces glabrous or scabrous. **Vernation** rolled. Common and widespread along roadsides, in pastures, and on other disturbed sites, especially on sandy soils.

140. SPOROBOLUS PYRAMIDATUS (Lam.) Hitchc. — WHORLED DROPSEED

Plants annual or perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 10–50 cm tall, erect or geniculate, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, shorter than the adjacent internodes, glabrous externally; margins distinct, open, inner margins entire, outer margins ciliate distally. **Collar** continuous, glabrous; margins sparsely pilose. **Auricles** absent. **Ligules** <1 mm long, ciliate with a minute, membranous base. **Leaf blades** linear, 3–12(–20) cm long, 2–4 mm wide; apex acute often involute; margins strigose; adaxial surface basally hispid otherwise glabrous; abaxial surface glabrous. **Vernation** rolled. Common along roadsides and on other open, disturbed sites.

141. SPOROBOLUS VAGINIFLORUS (Torr. ex A. Gray) Alph. Wood — POVERTY DROPSEED

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 15–60 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, shorter than the adjacent internodes, glabrous or sparsely pilose externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire with 1 or 2 long, soft hairs. **Auricles** absent. **Ligules** <0.5 mm long, a fringe of hairs. **Leaf blades** linear, basal blades 4–13 cm long, 1–2 mm wide, upper blades 1–

5 cm long, 1–2 mm wide, plane or involute, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces glabrous, occasionally hispid or pilose. **Vernation** rolled. Widespread and often abundant on disturbed areas over limestone.

142. STEINCHISMA HIANS (Ell.) Nash — GAPING PANICGRASS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. Culms 20–75 cm tall, erect or decumbent, firm, glaucous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** slightly laterally compressed, glabrous externally; margins distinct, open, entire, ciliate near the throat. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** to 0.5 mm long, ciliate with a minute, membranous base. **Leaf blades** linear, 6–18 cm long, 2–5 mm wide, plane or conduplicate, firm-textured; apex acute; margins entire; adaxial surface glabrous, pilose basally; abaxial surface glabrous. **Vernation** rolled. Primarily an east Texas species that occasionally occurs in moist depressions in grasslands and woodlands in a few Hill Country counties. Treated as *Panicum hians* Elliott by Correll and Johnston (1970) and Gould (1975).

143. STENOTAPHRUM SECUNDATUM (Walt.) Kuntze — ST. AUGUSTINEGRASS

Plants perennial, mat-forming. **Rhizomes** absent; **stolons** present. **Culms** 10–30 cm tall, prostrate or decumbent, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaves** distichous. **Leaf sheaths** compressed, occasionally weakly keeled, glabrous externally; margins distinct, open, entire, ciliate near the throat. **Collar** continuous, glabrous; margins ciliate. **Auricles** absent. **Ligules** <0.5 mm long, membranous, minute; margins ciliate with stiff hairs. **Leaf blades** linear, 3–15 cm long, 4–10 mm wide, conduplicate, firm-textured; apex obtuse; margins entire; adaxial and abaxial surfaces glabrous. **Vernation** folded. Widely cultivated as a turfgrass.

144. TRAGUS BERTERONIANUS Schult. — SPIKE BURGRASS

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 5–40 cm tall, erect or geniculate, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, shorter than the adjacent culm internodes, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins sparsely ciliate. **Auricles** absent. **Ligules** to 1 mm long, ciliate with a minute, membranous base. **Leaf blades** linear, 1–6 cm long, 2–5 mm wide, plane or loosely folded, firm-textured; apex acute; margins hispid, cartilaginous, whitish; adaxial and abaxial surfaces glabrous. **Vernation** rolled. Occasional on disturbed sites over sandy soil.

145. TRIDENS ALBESCENS (Vasey) Woot. & Standl. — WHITE TRIDENS

Plants perennial, cespitose. **Rhizomes** short, knotty; **stolons** absent. **Culms** 30–90 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** mostly glabrous, the lowermost sparsely pubescent. **Leaf sheaths** mostly rounded, the lowermost weakly keeled, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** <0.5 mm long, ciliate with a minute, membranous base. **Leaf blades** linear, 8–25 cm long, 1–4 mm wide, plane, firm-textured, glaucous; apex attenuate, involute; margins barbed; adaxial and abaxial surfaces glabrous. **Vernation** rolled. Common in roadside ditches and other low-lying sites with moist soil.

146. TRIDENS BUCKLEYANUS (L.H. Dewey) Nash — BUCKLEY'S TRIDENS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 40–80 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** antrorsely hispid above, glabrous below. **Leaf sheaths** rounded, scabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous;

margins entire. **Auricles** absent. **Ligules** to 0.5 mm long, membranous; margins truncate, ciliate with hairs to 0.5 mm long. **Leaf blades** linear, 7.5 25 long, 1 4 mm wide, plane, firm-textured; apex attenuate; margins entire; adaxial and abaxial surfaces scabrous, less frequently glabrous. **Vernation** rolled. Occasional in moist woodlands along the eastern margin of the Hill Country.

147. TRIDENS ERAGROSTOIDES (Vasey & Scribn.) Nash — LOVEGRASS TRIDENS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 50 100 cm tall, erect, firm, slender, glabrous, not swollen at the base. **Culm nodes** glabrous or sparsely pilose. **Leaf sheaths** rounded, glabrous or sparsely pilose externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 1 3 mm long, membranous, obtuse or acute; margins lacerate. **Leaf blades** linear, 10 30 long, 1.5 5 mm wide, plane, firm-textured; apex attenuate; margins entire; adaxial and abaxial surfaces scabrous, less frequently sparsely pilose. **Vernation** rolled. Occasional in brushy grasslands under shrubs.

148. TRIDENS FLAVUS (L.) Hitchc. — PURPLETOP

Plants perennial, cespitose. **Rhizomes** short, knotty; **stolons** absent. **Culms** 60 180 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, the lowermost sheaths compressed and keeled, glabrous externally; margins distinct, open, entire. **Collar** continuous, pubescent; margins pubescent. **Auricles** absent. **Ligules** <0.5 mm long, ciliate with a minute, membranous base. **Leaf blades** linear, 10 50 cm long, 3 10 mm wide, plane, firm-textured; apex attenuate, involute; margins entire; adaxial surface with sparse, matted pubescence behind the ligule, otherwise glabrous or hispid; abaxial surface glabrous or hispid. **Vernation** rolled. Widespread in shaded woodlands.

149. TRIDENS MUTICUS (Torr.) Nash — SLIM TRIDENS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 20 80 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** pubescent or villous. **Leaf sheaths** rounded, glabrous or scabrous externally, the lowermost sheaths pilose; margins distinct, open, entire. **Collar** continuous, pubescent; margins pubescent or villous. **Auricles** absent. **Ligules** 0.5 1 mm long, ciliate with a minute, membranous base. **Leaf blades** linear, 6 25 cm long, 1 4 mm wide, involute, firm-textured; apex attenuate; margins entire; adaxial and abaxial surfaces glabrous or sparsely pilose. **Vernation** rolled. Common in grasslands, on dry, rocky slopes, and along roadsides.

150. TRIDENS TEXANUS (S. Wats.) Nash — TEXAS TRIDENS

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 20 75 cm tall, erect, firm, slender, pilose, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous or pilose externally; margins distinct, overlapping, entire. **Collar** continuous, pubescent; margins pubescent. **Auricles** absent. **Ligules** ± 1 mm long, ciliate with a minute, membranous base. **Leaf blades** linear, 7 20 cm long, 1 5 mm wide, plane or involute, firm-textured; apex attenuate; margins entire; adaxial and abaxial surfaces hispid. **Vernation** rolled. Widespread but infrequent along roadsides, fencerows, and woodland margins.

151. TRIPLASIS PURPUREA (Walt.) Chapm. — PURPLE SANDGRASS

Plants annual or perennial, cespitose. **Rhizomes** absent in annual individuals and present in perennial indidivduals; **stolons** absent. **Culms** 45 80 cm tall, geniculate, the outermost culms of a clump decumbent, firm, glabrous, not swollen at the base. **Culm nodes** hirsute. **Leaf sheaths**

rounded, glabrous or hispid externally; margins ciliolate. **Collar** continuous, glabrous; margins distinct, open, entire. **Auricles** absent. **Ligules** to 1 mm long, a fringe of hairs. **Leaf blades** linear, 4–8 cm long, 1 3 mm wide, plane or involute, firm-textured; apex attenuate; margins with a few papillose hairs; adaxial and abaxial surfaces glabrous or sparsely pilose with papillose hairs. **Vernation** rolled. Roadsides and other disturbed sites over sandy soils.

152. TRIPOGON SPICATUS (Nees) Ekman — AMERICAN TRIPOGON

Plants perennial, cespitose. **Rhizomes** and **stolons** absent. **Culms** 10 30 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous; leaves mostly basal. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins ciliate. **Auricles** absent. **Ligules** <0.5 mm long, membranous, truncate; margins erose, ciliate. **Leaf blades** filiform, 3–10 cm long, ±1 mm wide, plane, becoming involute upon drying, firm-textured; apex attenuate; margins entire; adaxial and abaxial surfaces glabrous or sparsely hirsute. **Vernation** rolled. Common on rocky granitic slopes, occasionally over limestone.

153. TRIPSACUM DACTYLOIDES (L.) L. — EASTERN GAMMAGRASS

Plants perennial, cespitose. **Rhizomes** thick, knotty; **stolons** absent. **Culms** 150–300 cm tall, erect or geniculate, firm, stout, glabrous, not swollen at the base, occasionally producing prop roots. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally, shiny; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** to 0.5 mm long, membranous, truncate; margins erose, ciliate. **Leaf blades** linear, 30 75 cm long, 10 25 mm wide, plane, firm-textured; apex attenuate; margins scabrous; adaxial and abaxial surfaces glabrous. **Vernation** rolled. Occasional on moist soil along streams.

154. TRISETUM INTERRUPTUM Buckley — PRAIRIE TRISETUM

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 10–60 cm tall, erect or geniculate, weak, glabrous or distally puberulent, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, hispid externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** 1–2 mm long, membranous, obtuse; margins lacerate, ciliate. **Leaf blades** linear, 2 15 cm long, 1 4 mm wide, plane, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces sparsely hispid or hispid. **Vernation** rolled. Widespread but rarely abundant in grasslands, woodlands, and riparian habitats..

155. TRITICUM AESTIVUM L. — WHEAT

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 60 100 cm tall, erect, firm, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally, the lower sheaths pubescent externally; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** present, to 2.5 mm long. **Ligules** 1–3 mm long, membranous, truncate; margins erose. **Leaf blades** linear, 10 60 cm long, 7 20 mm wide, plane, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces glabrous or scabrous. **Vernation** folded. Cultivated and occasionally occurring as a waif along roadsides.

156. UROCHLOA CILIATISSIMA (Buckley) R.D. Webster — FRINGED SIGNALGRASS

Plants perennial, solitary or forming small clumps. **Rhizomes** present or absent; **stolons** present, elongate. **Culms** 15–40 cm tall, erect, firm, glabrous, not swollen at the base, often rooting at the lower nodes. **Culm nodes** glabrous. **Leaf sheaths** rounded, hirsute externally with both long

and short hairs; margins distinct, open, entire. **Collar** continuous, glabrous; margins entire. **Auricles** absent. **Ligules** <0.5 mm long, ciliate with a minute, membranous base. **Leaf blades** linear, 3–8 cm long, 2–7 mm wide, plane, firm-textured; apex acuminate; margins pilose with papillose hairs, cartilaginous, undulate, whitish; adaxial and abaxial surfaces scabrous. **Vernation** rolled. Widespread along roadsides and in pastures over sandy soils.

157. UROCHLOA FUSCA (Sw.) B.F. Hansen & Wunderlin — BROWNTOP SIGNALGRASS

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 30–120 cm tall, decumbent, firm, glabrous, the upper internodes puberulent, not swollen at the base, often rooting at the lower nodes. **Culm nodes** antrorsely pubescent. **Leaf sheaths** rounded, glabrous or hispid externally; margins distinct, overlapping, entire, occasionally the outer margins ciliate. **Collar** continuous, oblique, pubescent; margins entire. **Auricles** absent. **Ligules** 0.5–1.5 mm long, ciliate with a minute, membranous base. **Leaf blades** lanceolate, 4–20(–30) cm long, 5–15 mm wide, plane, firm-textured; apex acute; margins entire; adaxial surface hispid with papillose hairs on the lower blades, glabrous on the upper blades; abaxial surface glabrous. **Vernation** rolled. A widespread weedy species in roadside ditches, field margins, and other disturbed sites with moist soil. Treated as *Panicum fasciculatum* Sw. by Correll and Johnston (1970) and Gould (1975), as *Brachiaria fasciculata* (Sw.) S.T. Blake by Hatch et al. (1990), and as *U. fasciculata* (Sw.) R.D. Webster by Turner et al. (2003).

158. UROCHLOA TEXANA (Buckley) R.D. Webster — TEXAS SIGNALGRASS

Plants annual, cespitose. **Rhizomes** and **stolons** absent. **Culms** 40–120 cm tall, decumbent, firm, glabrous or distally puberulent, not swollen at the base, often rooting at the lower nodes. **Culm nodes** pubescent. **Leaf sheaths** rounded, pubescent externally; margins distinct, open, entire. **Collar** continuous, pubescent; margins entire, glabrous or ciliate. **Auricles** absent. **Ligules** ±0.5 mm long, membranous, truncate; margins ciliate with hairs 1–1.5 mm long. **Leaf blades** lanceolate, 8–20 cm long, 7–20 mm wide, plane or conduplicate, firm-textured; apex acute; margins undulate, serrate; adaxial and abaxial surfaces pubescent. **Vernation** rolled. Widespread on sandy, disturbed soils. Treated as *Panicum texanum* Buckley by Correll and Johnston (1970) and Gould (1975) and as *Brachiaria texana* (Buckley) S.T. Blake by Hatch et al. (1990).

159. VULPIA OCTOFLORA (Walt.) Rydb. — COMMON SIXWEEKSGRASS

Plants annual, solitary or forming small clumps. **Rhizomes** and **stolons** absent. **Culms** 10–60 cm tall, geniculate or decumbent, weak, slender, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally, occasionally pubescent externally; margins distinct, open, entire. **Collar** continuous, narrow, glabrous; margins entire. **Auricles** absent. **Ligules** 0.5–1 mm long, slightly longer on the sides, membranous, truncate; margins erose. **Leaf blades** linear, 2–10 cm long, 0.5–1 mm wide, involute, firm-textured; apex acute; margins entire; adaxial and abaxial surfaces glabrous or pubescent. **Vernation** folded. Widespread on disturbed sites.

160. ZIZANIOPSIS MILIACEA (Michx) Döll & Asch. — SOUTHERN WILDRICE

Plants perennial, forming large clumps. **Rhizomes** elongate; **stolons** absent. Culms 2–3 m tall, erect, firm, thick, glabrous, not swollen at the base. **Culm nodes** glabrous. **Leaf sheaths** rounded, glabrous externally; margins distinct, open, entire. **Collar** continuous, wide, glabrous; margins entire. **Auricles** absent. **Ligules** 6–20 mm long, membranous, with numerous fine nerves, acute; margins erose. **Leaf blades** linear, 50–100(–150) cm long, 8–25 mm wide, plane, firm-textured; apex acute; margins serrate; adaxial and abaxial surfaces glabrous. **Vernation** rolled. Occasional in shallow water along streams.

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Appendix A. Genera and species of Texas Hill Country grasses included in this treatment. The arrangement of subfamilies and tribes follows Shaw (2012).

Family Poaceae

Subfamily Aristidoideae
Tribe Aristideae
Aristida adscensionis L.
Aristida longespica Poir.
Aristida oligantha Michx.
Aristida purpurea Nutt.

Subfamily Arundinoideae
Tribe Arundineae
Arundo donax L.
Phragmites australis (Cav.) Trin. ex Steud.

Subfamily Centothecoideae
Tribe Centotheceae
Chasmanthium latifolium (Michx.) H.O. Yates

Subfamily Chloridoideae
Tribe Cynodonteae
Bouteloua aristidoides (Kunth) Griseb.
Bouteloua barbata Lag.
Bouteloua curtipendula (Michx.) Torr.
Bouteloua hirsuta Lag.
Bouteloua repens (Kunth) Scribn. & Merr.
Bouteloua rigidiseta (Steud.) Hitchc.
Bouteloua trifida Thurb.
Bouteloua uniflora Vasey
Buchloë dactyloides (Nutt.) Engelm.
Chloris andropogonoides E. Fourn.
Chloris cucullata Bisch.
Chloris verticillata Nutt.
Chloris virgata Sw.
Cynodon dactylon (L.) Pers.
Dactyloctenium aegyptium (L.) Willd.
Eleusine indica (L.) Gaertn.
Eragrostis barrelieri Daveau
Eragrostis cilianensis (All.) Vignolo ex Janch.
Eragrostis curtipedicellata Buckley
Eragrostis curvula (Schrad.) Nees
Eragrostis intermedia Hitchc.
Eragrostis lugens Nees
Eragrostis pectinacea (Michx.) Nees ex Steud.

Eragrostis reptans (Michx.) Nees
Eragrostis secundiflora J. Presl
Eragrostis spectabilis (Pursh) Steud.
Eragrostis superba Peyr.
Eragrostis trichodes (Nutt.) A. Wood
Erioneuron pilosum (Buckley) Nash
Hilaria belangeri (Steud.) Nash
Hilaria mutica (Buckley) Benth.
Leptochloa dubia (Kunth) Nees
Leptochloa fusca (L.) Kunth
Leptochloa panicea (Retz.) Ohwi
Muhlenbergia arenacea (Buckley) Hitchc.
Muhlenbergia lindheimeri Hitchc.
Muhlenbergia porteri Scribn. ex Beal
Muhlenbergia reverchonii Vasey & Scribn.
Muhlenbergia schreberi Gmel.
Muhlenbergia utilis (Torr.) Hitchc.
Muhlenbergia xinvoluta Swallen
Schedonnardus paniculatus (Nutt.) Trel.
Sporobolus airoides (Torr.) Torr.
Sporobolus clandestinus (Biehler) Hitchc.
Sporobolus compositus (Poir.) Merr.
Sporobolus cryptandrus (Torr.) A. Gray
Sporobolus pyramidatus (Lam.) Hitchc.
Sporobolus vaginiflorus (Torr. ex A. Gray) A. Wood
Tragus berteronianus Schult.
Tridens albescens (Vasey) Wooton & Standl.
Tridens buckleyanus (L.H. Dewey) Nash
Tridens eragrostoides (Vasey & Scribn.) Nash
Tridens flavus (L.) Hitchc.
Tridens muticus (Torr.) Nash
Tridens texanus (S. Wats.) Nash
Triplasis purpurea (Walt.) Chapm.
Tripogon spicatus (Nees) Ekman

Tribe Pappophoreae

Pappophorum bicolor E. Fourn.
Pappophorum vaginatum Buckley

Subfamily Ehrhartoideae

Tribe Oryzeae

Leersia oryzoides (L.) Sw.
Zizaniopsis miliacea (Michx) Döll & Aschers.

Subfamily Panicoideae

Tribe Andropogoneae

Andropogon gerardii Vitman
Andropogon glomeratus (Walt) B.S.P.
Andropogon virginicus L.
Bothriochloa barbinodis (Lag.) Herter
Bothriochloa edwardsiana (Gould) Parodi
Bothriochloa hybrida (Gould) Gould

Bothriochloa ischaemum (L.) Keng
Bothriochloa laguroides (DC.) Herter
Coelorachis cylindrica (Michx.) Nash
Dichanthium annulatum (Forssk.) Stapf
Heteropogon contortus (L.) P. Beauv.
Schizachyrium scoparium (Michx.) Nash
Sorghastrum nutans (L.) Nash
Sorghum bicolor (L.) Moench
Sorghum halepense (L.) Pers.
Tripsacum dactyloides (L.) L.

Tribe Paniceae

Cenchrus longispinus (Hack.) Fernald
Cenchrus myosuroides Kunth
Cenchrus spinifex Cav.
Dichanthelium acuminatum (Sw.) Gould & C.A. Clark
Dichanthelium oligosanthes (Schult.) Gould
Dichanthelium pedicellatum (Vasey) Gould
Dichanthelium sphaerocarpon (Ell.) Gould
Digitaria californica (Benth.) Henrard
Digitaria ciliaris (Retz.) Koeler
Digitaria cognata (Schult.) Pilg.
Digitaria insularis (L.) Mez ex Ekman
Digitaria patens (Swallen) Henrard
Digitaria sanguinalis (L.) Scop.
Echinochloa colona (L.) Link
Echinochloa crus-galli (L.) P. Beauv.
Echinochloa crus-pavonis (Kunth) Schult.
Eriochloa contracta Hitchc.
Eriochloa sericea (Scheele) Munro ex Vasey
Hopia obtusa (Kunth) Zuloaga & Morrone
Panicum antidotale Retz.
Panicum capillare L.
Panicum coloratum L.
Panicum hallii Vasey
Panicum virgatum L.
Paspalum dilatatum Poir.
Paspalum distichum L.
Paspalum pubiflorum Rupr. ex E. Fourn.
Paspalum setaceum Michx.
Paspalum urvillei Steud.
Pennisetum ciliare (L.) Link
Setaria grisebachii E. Fourn.
Setaria leucopila (Scribn. & Merr.) K. Schum.
Setaria parviflora (Poir.) Kerguélen
Setaria pumila (Poir.) Roem. & Schult.
Setaria reverchonii (Vasey) Pilger
Setaria scheelei (Steud.) Hitchc.
Setaria verticillata (L.) P. Beauv.
Setaria villosissima (Scribn. & Merr.) K. Schum.
Setaria viridis (L.) P. Beauv.
Stenchisma hians (Ell.) Nash

Stenotaphrum secundatum (Walt.) Kuntze
Urochloa ciliatissima (Buckley) R.D. Webster
Urochloa fusca (Sw.) B.F. Hansen & Wunderlin
Urochloa texana (Buckley) R.D. Webster

Subfamily Pooideae

Tribe Bromeae

Bromus catharticus Vahl
Bromus japonicus Thunb.
Bromus pubescens Muhl. ex Willd.
Bromus secalinus L.
Bromus tectorum L.
Bromus texensis (Shear) Hitchc.

Tribe Diarrheneae

Glyceria striata (Lam.) Hitchc.
Melica nitens (Scribn.) Nutt. ex Piper

Tribe Poeae

Agrostis hyemalis (Walt.) B.S.P.
Avena fatua L.
Avena sativa L.
Desmazeria rigida (L.) Tutin
Festuca versuta Beal
Limnodea arkansana (Nutt.) L.H. Dewey
Lolium perenne L.
Lolium temulentum L.
Phalaris carolíniana Walt.
Poa annua L.
Poa arachnifera Torr.
Polypogon monspeliensis (L.) Desf.
Polypogon viridis (A. Gouan) Breistr.
Sphenopholis obtusata (Michx.) Scribn.
Trisetum interruptum Buckley
Vulpia octoflora (Walt.) Rydb.

Tribe Stipeae

Nassella leucotricha (Trin. & Rupr.) R.W. Pohl

Tribe Triticeae

Aegilops cylindrica Host
Elymus canadensis L.
Elymus virginicus L.
Hordeum murinum L.
Hordeum pusillum Nutt.
Hordeum vulgare L.
Triticum aestivum L.

Appendix B. Specimens examined.

Aegilops cylindrica Host
Texas. Blanco Co.: *Wipff et al. 77* (TAES). Eastland Co.: *Gould 7589* (TEX-LL). Hemphill Co.: *Reeder & Reeder 5313* (TEX-LL). Kerr Co.: *Sanchez 1254* (SWT). Llano Co.: *S.&G. Jones 6616* (SWT). Randall Co.: *Hatch 6310* (TAES). Tom Green Co.: *Hatch & Gandhi 5410* (SWT). Travis Co.: *Tharp 53-822* (TEX-LL), *Tharp s.n.* (TEX-LL).

Agrostis hyemalis (Walt.) B.S.P.
Texas. Bowie Co.: *Gould 14278* (TAES). Brazos Co.: *Aljoe 36* (SWT), *Gould 15405* (SWT). Burleson Co.: *Snow 230* (SWT), *Toledo 26* (SWT). Fort Bend Co.: *Knight 138* (SWT). Grimes Co.: *Lemke 224* (SWT). Houston Co.: *S.&G. Jones 1037* (TAES). Jackson Co.: *Cosper 67* (SWT). Leon Co.: *Nixon 17892* (TAES).

Andropogon gerardii Vitman
Texas. Angelina Co.: *Johnston et al. 7131* (SWT). Blanco Co.: *Sanchez 953* (SWT). Coryell Co.: *Sanchez 1428* (SWT). Dallam Co.: *Johnston & Walker 6838* (SWT). Donley Co.: *Johnston & Walker 6797* (SWT). Harris Co.: *Nixon 5995* (SWT). Hartley Co.: *Johnston & Walker 6853* (SWT). Hays Co.: *Lemke 2714* (SWT); *Lyday 290* (SWT). Kendall Co.: *Breckenridge 577* (SWT).

Andropogon glomeratus (Walt.) B.S.P.
Texas. Aransas Co.: *Lemke 734* (SWT). Bandera Medina Co.: *Lackey 329* (SWT). Blanco Co.: *Ramirez 7* (SWT); *Sanchez 894* (SWT). Comal Co.: *Schoolcraft 48* (SWT). Cameron Co.: *Boylan 426* (SWT). Harris Co.: *Nixon 16075* (SWT). Hays Co.: *Litchfield s.n.* (SWT). Nueces Co.: *Lemke 2066* (SWT). Val Verde Co.: *Labus 64* (SWT).

Andropogon virginicus L.
Texas. Anderson Co.: *Hatch 5072* (SWT). Bastrop Co.: *Carr 9425* (SWT). Galveston Co.: *Hatch 5759* (SWT); *Newcomb 35* (SWT); *Waller 3272* (SWT); *Waller & Bauml 3324* (SWT). Nacogdoches Co.: *Brooks 15* (TAES). San Augustine Co.: *George & Nixon 161* (SWT). Tarrant Co.: *Snowden 915361* (TAES). Tyler Co.: *Johnston et al. 7014* (SWT).

Aristida adscensions L.
Texas. Angelina Co.: *McCall 64-30* (TAES). Brazos Co.: *Redder 53* (TAES); *Morden 128* (TAES). Crockett Co.: *Lemke 2617* (SWT). Dallam Co.: *Johnston & Walker 6827* (SWT). Edwards Co.: *Cory s.n.* (TEX-LL). Hidalgo Co.: *S.&G. Jones 6122* (SWT). Lamb Co.: *Johnston & Walker 6897* (SWT). Oldham Co.: *Johnston & Walker 6864* (SWT). Val Verde Co.: *Tharp 56-21* (TEX-LL).

Aristida longespica Poir.
Texas. Bastrop Co.: *Carr & Kutac 9262, 9265* (TEX-LL). Brazoria Co.: *Hatch 1119* (TAES). Erath Co.: *Hancock 64-9* (TAES). Galveston Co.: *Hatch 1794* (TAES); *Waller & Bauml 3217* (SWT). Houston Co.: *Rosen & Jones 648* (SWT). Lampasas Co.: *Hatch 5819* (TEX-LL). Leon Co.: *Daniel et al. 16* (SWT). Tarrant Co.: *Carr 13159* (TEX-LL).

Aristida oligantha Michx.
Texas. Anderson Co.: *Hatch 5081* (SWT). Caldwell Co.: *Breckenridge 548* (SWT). Comal Co.: *Neely 18* (SWT); *Stapper 49* (SWT). Galveston Co.: *Waller & Bauml 3189* (SWT). Hays Co.: *Ruiseco 21* (SWT). Oldham Co.: *Johnston & Walker 6874* (SWT). San Augustine Co.: *George & Nixon 76* (SWT). Zavala Co.: *Dingee 45* (SWT).

Aristida purpurea Nutt.
Texas. Bee Co.: *Lemke 2256* (SWT). Blanco Co.: *Sanchez 828* (SWT). Guadalupe Co.: *Roberts 169* (SWT). Hays Co.: *Lemke 414, 485, 801* (SWT). Kenedy Co.: *Lemke 311* (SWT). Kerr Co.: *Sanchez 1067* (SWT). Live Oak Co.: *Mittelhauser 176* (SWT). Uvalde Co.: *Lemke 944* (SWT). Val Verde Co.: *Labus 126* (SWT). Zapata Co.: *Lemke 1526* (SWT). Zavala Co.: *Shepard 37* (SWT).

Arundo donax L.
Texas. Bexar Co.: *Bruno 37* (SWT). Blanco Co.: *Hutzler 44* (SWT); *Sanchez 829* (SWT). Calhoun Co.: *Harvey 7580* (TAES). Comal Co.: *Leister 53* (TAES). Fayette Co.: *Mikesky 46* (TAES). Galveston Co.: *Waller 3280* (SWT). Guadalupe Co.: *Jefferies 22* (SWT); *Smith 41* (SWT). Hays Co.: *Litchfield s.n.* (SWT). Titus Co.: *Lemke 1297* (SWT). Travis Co.: *Thomas 70* (SWT).

Avena fatua L.
Texas. Blanco Co.: *Ramirez 193* (SWT). Bexar Co.: *Hagenbuch 27* (SWT). Caldwell Co.: *Lemke 463* (SWT). Comal Co.: *Morris 62* (SWT). Guadalupe Co.: *Shipman 35* (SWT). Travis Co.: *Jones 14* (SWT). Wharton Co.: *Blecha 19* (SWT).

Avena sativa L.
Texas. Brazos Co.: *Toledo 17* (TAES). Galveston Co.: *Waller & Campbell 2693* (TAES). Gillespie Co.: *Behrends 54* (SWT). Medina Co.: *Lemke 1747* (SWT).

Bothriochloa barbinodis (Lag.) Herter
Texas. Bexar Co.: *Silveus 7576* (TEX-LL). Brown Co.: *Carr 9665* (TEX-LL). Gaines Co.: *Johnston & Walker 6360* (SWT). Hays Co.: *Gould 6692* (TEX-LL); *Liang 115* (SWT). Kendall Co.: *Carr 9386* (TEX-LL). Kerr Co.: *Brown s.n.* (TEX-LL). Lampasas Co.: *Hatch 5822* (TEX-LL). Real Co.: *Smith & Butterwick 288* (TEX-LL). Travis Co.: *Brown s.n.* (TEX-LL). Val Verde Co.: *Labus 156* (SWT).

Bothriochloa edwardsiana (Gould) Parodi
Texas. Edwards Co.: *Gould & Merrill 5763* (TAES); *Gould & Merrill 5971* (TAES). Kerr Co.: *Brown s.n.* (TEX-LL); *Gould 8241* (TAES). Menard Co.: *Landers 5229* (TAES). Sutton Co.: *Gould & Merrill 5763* (TEX-LL).

Bothriochloa hybrida (Gould) Gould
Texas. Atascosa Co.: *Gould 6223* (TEX-LL). Bastrop Co.: *Oakley 354* (SWT). Burnet Co.: *Lemke 2040* (SWT). Duval Co.: *Hatch 5263* (SWT). Galveston Co.: *Waller & Brauml 2920* (SWT). Guadalupe Co.: *Gould 6940* (TEX-LL). Real Co.: *Gould 6482* (TEX-LL). Travis Co.: *Brown s.n.* (TEX-LL). Uvalde Co.: *Gould 6948, 6950* (TEX-LL). Williamson Co.: *Mears 638* (TEX-LL).

Bothriochloa ischaemum (L.) Keng
Texas. Bandera/Medina Co.: *Lackey 254* (SWT). Blanco Co.: *Lemke 705* (SWT); *Sanchez 772, 938* (SWT). Fort Bend Co.: *Knight 142* (SWT). Hays Co.: Bierner *90-210* (SWT); *Breckenridge 449* (SWT); *Breckenridge 512* (SWT); *Lyday 143* (SWT); *Ruiseco 29* (SWT). Kerr Co.: *Sanchez 1065* (SWT). Lampasas Co.: *Colquitt 16* (SWT); *Robinson 10* (SWT). Val Verde Co.: *Labus 338* (SWT).

Bothriochloa laguroides (DC.) Herter
Texas. Bandera Medina Co.: *Sanchez 562* (SWT). Burnet Co.: *Breckenridge 613* (SWT). Crockett Co.: *Lemke 2596* (SWT). Gillespie Co.: *Sanchez 969* (SWT). Hays Co.: *Burleson 18* (SWT); *Lyday 247* (SWT); *Monahan 20* (SWT). San Patricio Co.: *Aljoe 32* (SWT). Val Verde Co.: *Labus 298* (SWT).

Bouteloua aristidoides (Kunth) Griseb.
Texas. Burnet Co.: *Carr, Kutac, Lynch & Brown 9143* (TEX-LL); *S.&G. Jones 1903* (TAES); *Powell & Powell 4110* (TAES). Hidalgo Co.: *Carr 14327* (TEX-LL). Llano Co.: *Lemke s.n.* (SWT). Mason Co.: *Emery 815* (TEX-LL). Starr Co.: *Butterwick & Strong 1403* (TEX-LL). Travis Co.: *Carr & Bergquist 11381* (TEX-LL). Webb Co.: *Saenz 1* (TEX-LL). Winkler Co.: *Warnock 18545* (TEX-LL).

Bouteloua barbata Lag.
Texas. Brooks Co.: *Jones 6078* (SWT). Duval Co.: *Ramirez, Alva & McCart 8710* (TEX-LL). El Paso Co.: *Hatch 5854* (SWT). Jeff Davis Co.: *Warnock & Johnston 16880* (SWT). Presidio Co.: *Warnock 14173* (SWT). Scurry Co.: *Johnston 6528* (SWT). Webb Co.: *Baird 60-61-15* (TEX-LL); *McCart, Barreda & Garcia 6* (TEX-LL); *Perez 94* (TEX-LL).

Bouteloua curtipendula (Michx.) Torr.
Texas. Bandera Medina Co.: *Lackey 279* (SWT). Blanco Co.: *Sanchez 776* (SWT). Brazos Co.: *Kastan 73* (SWT). Brown Co.: *Black 207a* (SWT); *Sumrall 25* (SWT). Burnet Co.: *Oakley 295* (SWT); *Reid 2* (SWT). Comal Co.: *Breckenridge 495* (SWT). Grimes Co.: *Lemke 1933* (SWT). Kimble Co.: *Sanchez 1023* (SWT). Llano Co.: *Lemke* 2054 (SWT). Williamson Co.: *Carr 3225* (SWT).

Bouteloua hirsuta Lag.
Texas. Anderson Co.: *Orzell & Bridges 7977* (SWT). Bandera/Medina Co.: *Lackey 247* (SWT). Burnet Co.: *Lemke 721* (SWT). Comal Co.: *Breckenridge 492* (SWT); *Schoolcraft 60* (SWT). Gillespie Co.: *Boylan 315* (SWT); *Sanchez 988* (SWT). Kendall Co.: *Breckenridge 574* (SWT). Hays Co.: *Breckenridge 517* (SWT); *Jessup 31* (SWT); *Lemke 673* (SWT); *Lyday 135* (SWT). Llano Co.: *Wallace 96* (SWT).

Bouteloua repens (Kunth) Scribn. & Merr.
Texas. Bexar Co.: *Diaz & Higdon H17* (TEX-LL); *Miller s.n.* (TAES). Hidalgo Co.: *Carr, Wolfe & Liu 14312* (TEX-LL); *Gould 9667* (TEX-LL); *Lonard 5009* (SWT). Jim Hogg Co.: *Carr & Whitling 13204* (TEX-LL); *S.&G. Jones 7849* (SWT). La Salle Co.: *Cocke 18* (TAES). Webb Co.: *Gould 11094* (TAES).

Bouteloua rigidiseta (Steud.) Hitchc.
Texas. Bandera/Medina Co.: *Lackey 446* (SWT). Blanco Co.: *Sanchez 907* (SWT). Burleson Co.: *Toledo 25* (SWT). Comal Co.: *Breckenridge 494* (SWT). Gillespie Co.: *Sanchez 959* (SWT). Hays Co.: *Lemke 390, 440, 799, 1566* (SWT); *Liang 101* (SWT); *Lyday 150* (SWT); *Rockett 78* (SWT); *Ruiseco 20* (SWT). Jim Hogg Co.: *Lemke 1566* (SWT). Kerr Co.: *Sanchez 1060* (SWT). Kimble Co.: *Sanchez 1354* (SWT). Kleberg Co.: *Cresson 71* (SWT). McLennan Co.: *Holmes 5035* (SWT). Williamson Co.: *Carr 3216* (SWT). Zavala Co.: *Casey 65* (SWT).

Bouteloua trifida Thurb.
Texas. Blanco Co.: *Launchbaugh 387* (TAES). Comal Co.: *West 35* (TAES). Edwards Co.: *Gibbens 37* (TAES); *Hyman 62* (TAES). Gillespie Co.: *Sanchez 1057* (SWT). Hays Co.: *Breckenridge 609* (SWT); *Jessup 64* (SWT); *Lemke 796* (SWT). Kimble Co.: *Sanchez 1034* (SWT). Llano Co.: *Lemke 695* (SWT). Uvalde Co.: *Shepard 73* (SWT). Val Verde Co.: *Labus 127* (SWT); *Labus 305, 339* (SWT).

Bouteloua uniflora Vasey
Texas. Bandera Co.: *Silveus 7207* (TEX-LL). Brewster Co.: *Warnock 6932* (TEX-LL); *Warnock 23239* (TEX-LL). Edwards Co.: *Brown & Freter s.n.* (TEX-LL). Kerr Co.: *Gould 9751* (TEX-LL);

May 5520 (TEX-LL). Kimble Co.: *Gould 96836* (TEX-LL). Tom Green Co.: *Gould 7802* (TEX-LL). Uvalde Co.: *Silveus 319* (TEX-LL).

Bromus catharticus Vahl
Texas. Bastrop Co.: *Ursin 28* (SWT). Bexar Co.: *Hagenbuch 8* (SWT); *Mayo 51* (SWT). Gillespie Co.: *Weidenfeller 5* (SWT). Lubbock Co.: *Steed & Crumley 64* (SWT). McMullen Co.: *Lemke 1599* (SWT). Medina Co.: *Lemke 1755* (SWT). San Patricio Co.: *Lemke 835* (SWT). Tom Green Co.: *Lemke 1630* (SWT). Uvalde Co.: *Lemke 935* (SWT). Wilson Co.: *Mills 21* (SWT).

Bromus japonicus Thunb.
Texas. Bandera Medina Co.: *Lackey 547* (SWT). Bastrop Co.: *Jones 89* (SWT). Comal Co.: *Lemke 521* (SWT). Concho Co.: *Hatch & Gandhi 5411* (SWT). Coryell Co.: *Coffey 1628* (SWT). Hays Co.: *Blecha 11* (SWT); *Lackey 91* (SWT); *Ruiseco 37* (SWT). Sabine Co.: *Lemke 1006* (SWT).

Bromus pubescens Muhl. ex Willd.
Texas. Bell Co.: *Carr & Sanchez 17395, 17397* (TEX-LL). Bexar Co.: *Tharp s.n.* (TEX-LL). Blanco Co.: *Tharp 43246* (TEX-LL). Goliad Co.: *Carr 9505* (TEX-LL). Hays Co.: *Carr & Johnson 18089* (TEX-LL). Parker Co.: *Carr 13931* (TEX-LL). Tarrant Co.: *Carr 12821* (TEX-LL). Travis Co.: *Carr 18893, 18904* (TEX-LL); *Lemke 3657* (SWT). Williamson Co.: *Carr 18827* (TEX-LL).

Bromus secalinus L.
Texas. Brazos Co.: *Knight 163* (SWT); *Toledo 18* (SWT). Caldwell Co.: *Lemke 457* (SWT). Comal Co.: *Lemke 399* (SWT). Crockett Co.: *Lemke 2569* (SWT). Grimes Co.: *Lemke 188* (SWT). Guadalupe Co.: *Braswell 94* (SWT). Llano Co.: *Hatch et al. 6243* (SWT). Titus Co.: *Lemke 1791* (SWT).

Bromus tectorum L.
Texas. Blanco Co.: *Sanchez 1213* (SWT); *Wipff et al. 106* (TAES). Kerr Co.: *Hardy 144* (TAES); *McMahan 156* (TAES); *Sanchez 1253, 1279* (SWT). Lipscomb Co.: *Wallis 8436* (TEX-LL). Ochiltree Co.: *Gould 9864* (TEX-LL). Roberts Co.: *Wallis 8520* (TEX-LL).

Bromus texensis (Shear) Hitchc.
Texas. Bexar Co.: *Carr & Diamond 14633* (TEX-LL); *Silveus 7, 615, 5915* (TAES); *Silveus 3911* (TEX-LL);. Refugio Co.: *Hill 6839* (TAES); *Osborn 53* (TAES). San Patricio Co.: Aljoe *15* (SWT); *Anderson 25* (SWT); *Gould 11093* (TEX-LL); *Hatch 4785* (SWT) *Ramu 54* (SWT); *Snow 258* (TEX-LL); *Toledo 38* (SWT).

Buchloë dactyloides (Nutt.) Engelm.
Texas. Bandera Medina Co.: *Lackey 381* (SWT). Crockett Co.: *Lemke 2626* (SWT). Fayette Co.: *Aljoe 3* (SWT). Gillespie Co.: *Kast 8* (TAES). Jim Hogg Co.: *S.&G. Jones 824* (SWT). Kerr Co.: *Coffey 45* (TAES). Kimble Co.: *Sanchez 1301* (SWT). Scurry Co.: *Johnston 6530* (SWT). Uvalde Co.: *Shepard 65* (SWT). Zavala Co.: *Casey 71* (SWT).

Cenchrus longispinus (Hack.) Fernald
Texas. Brewster Co.: *Warnock & Johnston 16844* (SWT). Carson Co.: *Johnston & Walker 6803* (TEX-LL). Collingsworth Co.: *Gould & Thomas 7731* (TEX-LL). Lamb Co.: *Gould 7739* (TAES). Lubbock Co.: *Gould 7786* (TEX-LL), *Gould 7793* (TAES). Presidio Co.: *Correll & Johnston 24375* (TEX-LL), *Morden 413* (TAES).

Cenchrus myosuroides Kunth
Texas. Bexar Co.: *Tharp s.n.* (SWT). Brazos Co.: *Hatch 1140* (TAES). Hidalgo Co.: *Fleetwood*

10978 (TEX-LL). Presidio Co.: *Butterwick & Strong B-1057* (TEX-LL). San Patricio Co.: *Gould 11956* (TEX-LL), *Gould 13992* (TAES), *Hatch 4456* (TAES). Travis Co.: *DeLisle 973* (TEX-LL). Val Verde Co.: *Eggert s.n.* (TEX-LL), *Warnock & Parks s.n.* (TEX-LL). Webb Co.: *Chamberlain 18* (TEX-LL).

Cenchrus spinifex A. Cavanilles
Texas. Bailey Co.: *Johnston & Walker 6901* (SWT). Bandera Medina Co.: *Sanchez 629* (SWT). Blanco Co.: *Sanchez 775, 935* (SWT). Brazos Co.: *Redder 11* (SWT); *Windham 27* (SWT). Crockett Co.: *Lemke 2620* (SWT). DeWitt Co.: *Logeman 97* (SWT). Glasscock Co.: *Johnston & Walker 6963* (SWT). Hays Co.: *Breckenridge 456* (SWT). Hidalgo Co.: *Hook 8* (SWT). Kaufman Co.: *Lemke 2920* (SWT). Kinney Co.: *Rosen 242* (SWT). Kleberg Co.: *Lemke 3004* (SWT). Sutton Co.: *Mitchell 55* (SWT). Titus Co.: *Lemke 1244* (SWT).

Chasmanthium latifolium (Michx.) H.O. Yates
Texas. Anderson Co.: *Daniel 41* (SWT). Bexar Co.: *Morris 43* (SWT). Brazos Co.: *McGuyer 3* (SWT); *Perry 9* (SWT). Denton Co.: *Boylan 200* (SWT). Galveston Co.: *Waller & Bauml 2990* (SWT). Guadalupe Co.: *Brainard 5* (SWT). Houston Co.: *S.&G. Jones 3418* (SWT). Kimble Co.: *Sanchez 1051* (SWT). Robertson Co.: *Lemke 3360* (SWT). Travis Co.: *Bierner 90-138* (SWT); *Lemke 1950, 3828* (SWT). Van Zandt Co.: *Johnston 6641* (SWT).

Chloris andropogonoides E. Fourn.
Texas. Atascosa Co.: *Johnston 6197* (TEX-LL). Bexar Co.: *Freeborn 208* (TEX-LL); *Higdon 22* (TEX-LL); *Johnston 2409* (TEX-LL); *Silveus 2332* (TEX-LL). Hays Co.: *Emery 835* (TEX-LL). San Patricio Co.: *Aljoe 30* (SWT); *Gould & Hycka 8027* (TEX-LL). Travis Co.: *Brown E-3, E-6* (TEX-LL).

Chloris cucullata Bisch.
Texas. Atascosa Co.: *Hurley 5* (SWT). Bexar Co.: *Garcia 109* (SWT). Caldwell Co.: *Marr 11* (SWT). Edwards Co.: *Evans 28* (SWT). Frio Co.: *Blecha 37* (SWT). Gillespie Co.: *Boylan 320* (SWT); *Sanchez 966* (SWT). Gonzales Co.: *Lemke 2698* (SWT). Guadalupe Co.: *Roberts 168* (SWT). La Salle Co.: *Lake 19* (SWT). Llano Co.: Wallace *97* (SWT). Refugio Co.: *Jenkins 13* (SWT). Uvalde Co.: *Shepard 81* (SWT).

Chloris verticillata Nutt.
Texas. Bexar Co.: *Freeborn 208* (TEX-LL); *Rutledge 3* (TEX-LL). Bandera/Medina Co.: *Sanchez 626* (SWT). Blanco Co.: *Sanchez 781* (SWT). Dallam Co.: *Johnston & Walker 6835* (SWT). Hays Co.: *Heidemeyer 30* (SWT); Johnson 258 (TEX-LL). Llano Co.: *Emery 817* (TEX-LL). Scurry Co.: *Johnston 6533* (SWT). Travis Co.: *Dunlap 96* (TEX-LL), *Oefinger 306* (TEX-LL).

Chloris virgata Sw.
Texas. Baylor Co.: *Shinners 20764* (TEX-LL). El Paso Co.: *Hatch 5863* (SWT); *Worthington 17190* (SWT). Harris Co.: *Ward 1353* (SWT). Kimble Co.: *Sanchez 1036* (SWT). Travis Co.: *Brown 3273, 20529* (TEX-LL). Presidio Co.: *Foster 428* (SWT).

Coelorachis cylindrica (Michx.) Nash
Texas. Bastrop Co.: *Carr, Farquhar & Maresh 14649* (TEX-LL). Bee Co.: *Carr 12038* (TEX-LL). Hays Co.: *Carr 10681* (TEX-LL); *Sanders 4100* (TEX-LL). Kaufman Co.: *Bridges & Kindscher 13675* (TEX-LL). Llano Co.: *S.&G. Jones 3290* (SWT); *Wipff & Jones 1348, 1380* (TEX-LL). Parker Co.: *Carr et al. 15451* (TEX-LL). Tarrant Co.: *Carr 12816* (TEX-LL). Travis Co.: *Carr 18947* (TEX-LL).

Cynodon dactylon (L.) Pers.
Texas. Blanco Co.: *Margo 23* (TAES). Brazos Co.: *Knight 148* (SWT); *Snow 181* (SWT). Cameron Co.: *Lemke 574* (SWT). Culberson Co.: *Bierner 91-46* (SWT). Gillespie Co.: *Sanchez 995* (SWT). Gonzales Co.: *Keeble 16* (SWT). Guadalupe Co.: *Balcer 82* (SWT). Tom Green Co.: *Landers s.n.* (TAES). Travis Co.: *Ruiseco 209* (SWT). Washington Co.: *Polley 66,* (TAES). Williamson Co.: *Sutton 39* (TAES). Wilson Co.: *Smith 69* (SWT). Zavala Co.: *Dingee 51* (SWT).

Dactyloctenium aegyptium (L.) Willd.
Texas. Brazos Co.: *Donges et al. 9* (SWT); *Webster 1697* (TAES). Brown Co.: *Barton 34* (TAES). Caldwell Co.: *Lemke 790* (SWT). Galveston Co.: *Hatch 5755* (SWT). Jim Wells Co.: *Coffey 635* (TAES). Kleberg Co.: *Lemke 3005* (SWT). Nueces Co.: *Lemke 3331* (SWT). Wilson Co.: *Smith 71* (SWT).

Desmazeria rigida (L.) Tutin
Texas. Brazos Co.: *Gould 8643* (TAES); *Hatch 1663* (TEX-LL); *Knight 164* (SWT); *S.&G. Jones 1016* (TAES). Harris Co.: *Brown 20230* (TEX-LL). Hays Co.: *Hendrick 86* (SWT); *Ruiseco 50, 122* (SWT). Travis Co.: *Snow 219* (SWT). Washington Co.: *Lonard 2013* (TAES).

Dichanthelium acuminatum (Sw.) Gould & C.A. Clark
Texas. Burnet Co.: *Johnston 6351* (SWT). Galveston Co.: *Yeargan 315* (SWT). Jasper Co.: *S.&G. Jones 2605* (SWT). Polk Co.: *Jones & Wipff 1469, 1481, 1496* (SWT). San Jacinto Co.: *Jones & Wipff 1446* (SWT). Shelby Co.: *S.&G. Jones & Nixon 1333* (SWT). Travis Co.: *Lemke 3636* (SWT).

Dichanthelium oligosanthes (Schult.) Gould
Texas. Angelina Co.: *Johnston 6671* (SWT). Bandera Medina Co.: *Lackey 519* (SWT). Bastrop Co.: *Carr 6283* (SWT). Burleson Co.: *Toledo 23* (SWT). Cherokee Co.: *Johnston 6650* (SWT). Guadalupe Co.: *Ruiseco 141* (SWT). Hays Co.: *Pettingill 63* (SWT). Leon Co.: *Johnston 6704* (SWT). Real Co.: *Warnock 6811* (SWT). San Jacinto Co.: *S.&G. Jones 2480* (SWT). Smith Co.: *Johnston 6611* (SWT). Travis Co.: *Ruiseco 214* (SWT). Van Zandt Co.: *Johnston 6637* (SWT). Wood Co.: *S.&G. Jones 2757* (SWT).

Dichanthelium pedicellatum (Vasey) Gould
Texas. Bandera Co.: *Smith 496* (TEX-LL). Comal Co.: *Correll & Smith 29553* (TEX-LL). Kendall Co.: *Correll & Smith 29580* (TEX-LL). Travis Co.: *Carr 4709* (TEX-LL); *Mears 999* (TEX-LL); *Rodgers 6737* (TEX-LL); *Tharp 43164* (TEX-LL); *Warnock W1029* (TEX-LL). Uvalde Co.: *Gould 7675* (TEX-LL). Williamson Co.: *Carr 4032* (SWT).

Dichanthelium sphaerocarpon (Ell.) Gould
Texas. Anderson Co.: *Gould 14314* (TAES). Brazos Co.: *Northrup 15* (SWT); *Toledo 9* (SWT). Burleson Co.: *Knight & Miller 158* (SWT). Caldwell Co.: *Phillips 67* (SWT). Cass Co.: *Carr 9851* (SWT); *Johnston 6312* (SWT). Coryell Co.: *Wipff 261* (TAES). Franklin Co.: *Gould 14274* (TAES). Galveston Co.: *Clark 3039, 3058* (TAES). Houston Co.: *Jones & Wipff 1526* (SWT). Van Zandt Co.: *Carr 9768* (SWT).

Dichanthium annulatum (Forssk.) Stapf
Texas. Brazos Co.: *Troland 5* (SWT). Cameron Co.: *Lemke & Roberts 3034* (SWT). Coryell Co.: *Sanchez 1379* (SWT). Hidalgo Co.: *Lonard 4935* (SWT). Kenedy Co.: *Gould 11460* (TEX-LL). Nueces Co.: *Snow 189* (SWT). San Patricio Co.: *Lievens & Lievens 2909* (TEX-LL). Travis Co.: *Carr 17897* (TEX-LL). Val Verde Co.: *Carr et al. 12442* (TEX-LL).

Digitaria californica (Benth.) Henrard
Texas. Andrews Co.: *Scudday s.n.* (SWT). Archer Co.: *Gould 9771* (TAES). Brewster Co.: *Warnock s.n.* (SWT). Crane Co.: *McBryde 14956* (SWT). Gillespie Co.: *Epps 22* (TAES); *Snyder 29* (TAES). Hidalgo Co.: *Lonard 4977* (SWT). Kerr Co.: *Gould 8305* (TAES). Presidio Co.: *Warnock 14165* (SWT). Val Verde Co.: *Labus 346, 363* (SWT).

Digitaria ciliaris (Retz.) Koeler
Texas. Bastrop Co.: *Carr 9402* (TEX-LL); *Carr et al. 14938* (TEX-LL). Caldwell Co.: *Lemke 2677* (SWT). Cottle Co.: *Shinners 30357* (TEX-LL). Erath Co.: *Gould 10279* (TEX-LL). Grimes Co.: *Lemke 1941* (SWT). Hays Co.: *Breckenridge 513* (SWT). Hemphill Co.: *Rowell 4324* (TEX-LL). McLennan Co.: *S.&G. Jones 3217* (SWT). Parker Co.: *Lipscomb 2394* (TEX-LL). Robertson Co.: *Lemke 258* (SWT).

Digitaria cognata (Schult.) Pilg.
Texas. Bandera Medina Co.: *Sanchez 648* (SWT). Burnet Co.: *Boylan 2* (SWT). Crockett Co.: *Warnock & McBryde 15282* (SWT). Fayette Co.: *Shepard 100* (SWT). Gillespie Co.: *Sanchez 1058* (SWT). Hays Co.: *Lyday 142, 148* (SWT); *Ruiseco 28* (SWT). Kaufman Co.: *Lemke 2524* (SWT). Kerr Co.: *Sanchez 1080* (SWT). Kinney Co.: *Rosen 224* (SWT). Rusk Co.: *Rosen & Jones 676* (SWT). Titus Co.: *Lemke 1246* (SWT).

Digitaria insularis (L.) Mez ex Ekman
Texas. Cameron Co.: *Runyon 5969* (TEX-LL). Dimmit Co.: *Gould 5798* (TAES); *Schroeder 40* (TAES). Hidalgo Co.: *Fleetwood 3137, 3309, 7066* (TEX-LL); *Lonard 4977* (TAES); *Tidwell 67* (TEX-LL). Kleberg Co.: *Johnston 541659* (TEX-LL). Travis Co.: *Brown F-2* (TEX-LL).

Digitaria patens (Swallen) Henrard
Texas. Bexar Co.: *Parks s.n.* (TAES); *Silveus 2415* (TEX-LL). Jim Wells Co.: *Coffey 236, 1207* (TAES). Kleberg Co.: *Gould 11450* (TAES); *Lundell 14870, 14952, 15006* (TEX-LL). Llano Co.: *Brown & Higdon s.n.* (TEX-LL); *Gould 8430* (TEX-LL). Travis Co.: *Brown 3520* (TEX-LL). Val Verde Co.: *Warnock & McBryde 15049* (SWT).

Digitaria sanguinalis (L.) Scop.
Texas. Austin Co.: *Galle 12* (TAES). Bexar Co.: *Silveus 2246* (TEX-LL). Brazoria Co.: *Huett 39* (TAES). Collingsworth Co.: *Tharp & Miller 51-355* (TEX-LL). Hays Co.: *Bailey 92* (SWT). Jack Co.: *Gould 10283* (TEX-LL). Jeff Davis Co.: *Keough 16* (TEX-LL); *Warnock 6688, 7471* (TEX-LL). Smith Co.: *Johnston 6618* (SWT).

Echinochloa colona (L.) Link
Texas. Bexar Co.: *Freeborn 205* (TEX-LL); *Hutzler 20* (SWT). Blanco Co.: *Baird s.n.* (TEX-LL). Crockett Co.: *Lemke 2623* (SWT). El Paso Co.: *Worthington 17187* (SWT). Hays Co.: *Breckenridge 441* (SWT). Hill Co.: *Gereau 25* (TEX-LL). Lee Co.: *Carr & Kutac 8797* (TEX-LL). Travis Co.: *Mears 565* (TEX-LL); *Oefinger 301* (TEX-LL); *Turner 63* (TEX-LL). Waller Co.: *Ayers 89* (TEX-LL). Williamson Co.: *Gordon 51-1760* (TEX-LL).

Echinochloa crus-galli (L.) P. Beauv.
Texas. Brazos Co.: *Seidensticker 116* (TAES). Carson Co.: *Johnston & Walker 6805* (SWT). Castro Co.: *Johnston & Walker 6886* (SWT). Comanche Co.: *Anders 15* (TEX-LL). Dallam Co.: *Johnston & Walker 6842* (SWT). El Paso Co.: *Worthington 17410* (TAES). Lamb Co.: *Johnston & Walker 6896* (SWT). Travis Co.: *Barrie 805* (TEX-LL); *Carr 4171* (TAES); *Carr & Brown 9234* (TEX-LL).

Echinochloa crus-pavonis (Kunth) Schult.
Texas. Brazoria Co.: *Rosen 632* (SWT). Burnet Co.: *Breckenridge 567* (SWT). Calhoun Co.: *Gould 11525a* (TEX-LL). Galveston Co.: *Waller & Bauml 2827* (TEX-LL); *Wortham 44* (TEX-LL). Hidalgo Co.: *Lonard 5012* (SWT). Hays Co.: *Lemke 2752* (SWT). Jefferson Co.: *Rosen 359, 380* (SWT). Llano Co.: *Butterwick & Lamb 3276* (TEX-LL).

Eleusine indica (L.) Gaertn.
Texas. Bexar Co.: *Silveus 179, 2226* (TAES). Brazos Co.: *Donges 39* (SWT); *Miller 54* (SWT). Fayette Co.: *Mikesky 7* (TAES). Galveston Co.: *Newcomb 14* (SWT). Gillespie Co.: *Sanchez 998* (SWT). Gonzales Co.: *Staton 36* (SWT). Hays Co.: *Alvarez 16* (SWT); *Burleson 25* (SWT); *Jessup 113* (SWT). Hidalgo Co.: *Lonard 4928* (TAES). Refugio Co.: *Lemke 746* (SWT).

Elymus canadensis L.
Texas. Bandera/Medina Co.: *Lackey 499* (SWT). Comal Co.: *Lemke 527* (SWT). Crockett Co.: *Lemke 2568* (SWT). Galveston Co.: *Rosen 315* (SWT). Gillespie Co.: *Kast 51* (TAES). Grimes Co.: *S.&G. Jones 1598* (TAES). Hays Co.: *Lemke 441* (SWT). Kerr Co.: *Clarke 2* (TAES); *May 5513* (TAES). Stonewall Co.: *Johnston & Walker 6775* (SWT). Uvalde Co.: *Lemke 2381* (SWT).

Elymus virginicus L.
Texas. Blanco Co.: *Sanchez 1393* (SWT). Brazoria Co.: *Dingee 78* (SWT), *Rosen & Jones 592* (SWT). Dallas Co.: *Nixon et al. 5550* (TAES). Fayette Co.: *Ramu et.al.* (TAES). Grimes Co.: *S.&G. Jones 1601* (SWT). Guadalupe Co.: *Bierner 91-23* (SWT). Hays Co.: *Ruiseco 69* (SWT). Live Oak Co.: *Lemke 2352* (SWT). San Patricio Co.: *Toledo 40* (SWT).

Eragrostis barrelieri Daveau
Texas. Blanco Co.: *Sanchez 838* (SWT). Burnet Co.: *Lemke 2033* (SWT). Comal Co.: *Lemke 757* (SWT). El Paso Co.: *Hatch 5851* (SWT); *Worthington 17595* (SWT). Hays Co.: *Alvarez 55* (SWT); *Beard 51* (SWT); *Breckenridge 458* (SWT); *Jessup 156* (SWT); *Thomas 84* (SWT). Hidalgo Co.: *Lemke 855* (SWT); *Lonard 4929* (SWT). Kerr Co.: *Sanchez 1077* (SWT). Sterling Co.: *Johnston & Walker 6968* (SWT). Val Verde Co.: *Labus 279, 312* (SWT); *Warnock & McBryde 15134* (SWT).

Eragrostis cilianensis (All.) Vignolo ex Janch.
Texas. Hidalgo Co.: *Lonard 5017* (SWT). Hays Co.: *Lemke 2903* (SWT). Kaufman Co.: *Lemke 2922* (SWT). Kerr Co.: *Gould 8309, 8467* (TAES); *Hatch 5066a* (SWT); *May 5522* (TAES). Kinney Co.: *Rosen 245* (SWT). Lampasas Co.: *Hamrick 70* (SWT). McLennan Co.: *S.&G. Jones 3216* (SWT). Travis Co.: *Snider 1* (TAES). Williamson Co.: *Otto 41* (TAES).

Eragrostis curtipendicellata Buckley
Texas. Archer Co.: *Johnston 6587* (SWT). Duvall Co.: *S.&G. Jones 890* (TAES). Ector Co.: *Warnock 15805* (SWT). Fayette Co.: *Ripple 51-1040* (TEX-LL). Gillespie Co.: *Nixon 28* (TEX-LL). Hidalgo Co.: *Lonard 5029* (SWT). Jim Wells Co.: *Coffey 391, 607, 633* (TAES). Karnes Co.: *Johnson 806* (TEX-LL). Lampasas Co.: *Hatch et al. 5813* (TEX-LL). Medina Co.: *Johnston et al. 3430* (TEX-LL).

Eragrostis curvula (Schrad.) Nees
Texas. Bandera Co.: *Brownlee 63-37* (TAES). Bexar Co.: *Diaz & Higdon H42* (TEX-LL); *Silveus 2156, 4663, 4683* (TEX-LL). Brazos Co.: *Aljoe 39* (SWT). Comanche Co.: *Gould 11434* (TEX-LL). Gillespie Co.: *S.&G. Jones 1301* (TAES). Henderson Co.: *Gould 10476* (TAES). Leon Co.: *S.&G. Jones 1545* (SWT). McLennan Co.: *Henard 64-44* (TAES). Parker Co.: *Carr et al. 14205* (TEX-LL).

Eragrostis intermedia Hitchc.
Texas. Bandera Medina Co.: *Sanchez 645* (SWT). Culberson Co.: *Warnock 15942* (SWT). Gillespie Co.: *Sanchez 960* (SWT). Hays Co.: *Breckenridge 457* (SWT), *Jessup 57* (SWT), *Lemke 674* (SWT), *Lyday 281* (SWT), *Ruiseco 11* (SWT). , 197.: *Knight 180* (SWT). Val Verde Co.: *Labus 129, 197* (SWT).

Eragrostis lugens Nees
Texas. Aransas Co.: *Hays 206* (TAES). Bell Co.: *Wolff 481* (TAES). Harrison Co.: *Correll 35036* (TEX-LL). Karnes Co.: *Johnson 1287* (TAES). Refugio Co.: *Tharp s.n.* (SWT). Smith Co.: *Correll & Correll 32028* (TEX-LL). Taylor Co.: *Tracy 7928* (TEX-LL). Wichita Co.: *Mckee s.n.* (TEX-LL). Zapata Co.: *Lemke 1503* (SWT).

Eragrostis pectinacea (Michx.) Nees ex Steud.
Texas..: *Marsh 257* (TAES). DeWitt Co.: *Silveus 7804, 7815* (TEX-LL). Galveston Co.: *Waller & Bauml 3003* (TAES). Harris Co.: *Brown 2404* (TAES). Hays Co.: *Lemke 2899* (SWT). Llano Co.: *Gould 8436* (TEX-LL); *Tharp 43-23* (TEX-LL). Travis Co.: *Gould 7623* (TEX-LL).

Eragrostis reptans (Michx.) Nees
Texas. Anderson Co.: *Nixon et al. 3571* (TAES). Bexar Co.: *Silveus 925, 2468* (TEX-LL). Brazoria Co.: *Rosen & Jones 638* (SWT). Collin Co.: *Boylan 234* (SWT). Denton Co.: *Boylan 257* (SWT). Ellis Co.: *Green s.n.* (TAES). Hidalgo Co.: *Lonard 4971* (SWT). McMullen Co.: *Carr et al. 11314* (TEX-LL). Travis Co.: *Carr et al. 15599* (TEX-LL).

Eragrostis secundiflora J. Presl
Texas. Bastrop Co.: *Osborn 70* (SWT). Blanco Co.: *Sanchez 778, 933* (SWT). Guadalupe Co.: *Braswell 98* (SWT). Hays Co.: *Heidemeyer 29* (SWT). Kaufman Co.: *Lemke 2935* (SWT). Kenedy Co.: *Lundell & Correll 15236* (SWT). Kleberg Co.: *Barrientos s.n.* (SWT); *Lemke 2985* (SWT). Lee Co.: *Lemke 2962* (SWT). Llano Co.: *Wallace 98* (SWT). Nueces Co.: *Baker 4* (SWT); *Ruiseco 93* (SWT); *Smith 73* (SWT).

Eragrostis spectabilis (Pursh) Steud.
Texas. Cameron Co.: *S.&G. Jones 6105* (SWT). Gillespie Co.: *Sanchez 962* (SWT). Hays Co.: *Lemke 2908* (SWT). Kendall Co.: *Foster A-34* (TAES). Kerr Co.: *Sanchez 1095* (SWT). Lampasas Co.: *Colquitt et al. 10* (SWT). Milam Co.: *Spoonts 82020* (TAES). Robertson Co.: *Gould 7263, 11049* (TAES). Rusk Co.: *Rosen & Jones 680* (SWT).

Eragrostis superba Peyr.
Texas. Bastrop Co.: *Carr 14720* (TEX-LL). Brazos Co.: *Clark et al. 28* (SWT), *Emery 844* (TEX-LL), *Zieschang 21* (TAES). Llano Co.: *Breckenridge 561* (SWT), *S.&G. Jones & Wipff 3328* (SWT), *Lemke s.n.* (SWT), *Wipff 1384* (TEX-LL). Mason Co.: *Doell 24* (TAES). Menard Co.: *Crain 19* (TAES).

Eragrostis trichodes (Nutt.) Alph. Wood
Texas. Bexar Co.: *Oakley 1313* (SWT), *Silveus 7326* (TEX-LL). Brazos Co.: *Morden 124* (TAES). Leon Co.: *Jones & Wipff 2147* (TAES); *McLeod s.n.* (TAES); *Ruiseco & Phillips s.n.* (SWT). Lipscomb Co.: *Correll 30249* (TEX-LL). Randall Co.: *Higgins 9781* (TEX-LL). Travis Co.: *Warnock W1081* (TEX-LL).

Eriochloa contracta Hitchc.
Texas. Brazoria Co.: *Rosen 214* (SWT). Brazos Co.: *Gould 6141* (TEX-LL). Dallas Co.: *Galvan 38* (TAES). Galveston Co.: *Rosen 506* (SWT). Jim Wells Co.: *Johnston 542111* (TEX-LL). Jones Co.:

Johnston & Walker 6765 (SWT). Kerr Co.: *Gould 3800* (TAES). Nueces Co.: *Carr 11480, 11510* (TEX-LL). Victoria Co.: *Bownds 46* (TAES), *Hatch 4147* (TAES).

Eriochloa sericea (Scheele) Munro ex Vasey
Texas. Archer Co.: *Carr 15769* (TEX-LL). Bandera Medina Co.: *Lackey 543* (SWT). Bee Co.: *Mayfield 2112* (TEX-LL). Bell Co.: *Wipff 208* (TAES). Cameron Co.: *Lonard 4995* (SWT). Hays Co.: *Morris 11* (SWT). Hidalgo Co.: *Lonard 4932* (SWT). Kerr Co.: *Drews 19* (TAES). Lampasas Co.: *Hatch 5808* (TEX-LL). Taylor Co.: *Johnston 6517* (SWT).

Erioneuron pilosum (Buckley) Nash
Texas. Blanco Co.: *Sanchez 883* (SWT). Edwards Co.: *Evans 20* (SWT). Gillespie Co.: *Sanchez 1405* (SWT). Hays Co.: *Lemke 477, 680* (SWT); *Lyday 26* (SWT). Kimble Co.: *Sanchez 1353* (SWT). Kinney Co.: *Rosen 217* (SWT). Llano Co.: *Lemke 694* (SWT). Sutton Co.: *Lemke 1677* (SWT). Uvalde Co.: *Lemke 963* (SWT). Val Verde Co.: *S.&G. Jones 8029* (SWT); *Labus 313* (SWT).

Festuca versuta Beal
Texas. Bexar Co.: *Carr 14571* (TEX-LL), *Carr & Diamond 14635* (TEX-LL). Blanco Co.: *Carr & Price 11088* (TEX-LL); *Sanchez 1392* (SWT). Hays Co.: *Carr 18869, 18871* (TEX-LL). Kendall Co.: *Carr & McNeal 11077* (TEX-LL). Kimble Co.: *Sanchez 1351, 1364* (SWT). Travis Co.: *Carr 18903, 18971* (TEX-LL).

Glyceria striata (Lam.) Hitchc.
Texas. Bell Co.: *Carr & Sanchez 17540* (TEX-LL); *Wolff 3242* (TAES). Blanco Co.: *Cory 41377* (TAES). Culberson Co.: *Lind s.n.* (TEX-LL); *Warnock 11927* (TEX-LL). Kendall Co.: *Breckenridge 581* (SWT); *Carr & McNeal 11080* (TEX-LL). Kerr Co.: *Parks & Cory s.n.* (TAES). Lamar Co.: *Carr & Wolfe 13692* (TEX-LL). Travis Co.: *Carr & Stone* (TEX-LL).

Heteropogon contortus (L.) P. Beauv.
Texas. Brewster Co.: *Warnock s.n.* (SWT). Burnet Co.: *Kutac & Lynch 7494* (TEX-LL). Cameron Co.: *Fleetwood 3679* (TEX-LL). El Paso Co.: *Warnock 14242* (SWT). Starr Co.: *Butterwick & Strong 1329* (TEX-LL). Uvalde Co.: *Carr & Mattiza 16769* (TEX-LL). Val Verde Co.: *Labus 267, 319* (SWT).

Hilaria belangeri (Steud.) Nash
Texas. Bandera Medina Co.: *Sanchez 649* (SWT). Hays Co.: *Breckenridge 609* (SWT); *Lemke 697* (SWT); *Liang 108* (SWT). Kendall Co.: *Mattox 33* (SWT); *Seidensticker 141* (TAES). Kerr Co.: *Geier 59* (TAES). Kimble Co.: *Galle 25* (TAES); *Sanchez 1024* (SWT). Kinney Co.: *Rosen 221* (SWT). Menard Co.: *Clark 16* (TAES).

Hilaria mutica (Buckley) Benth.
Texas. Brewster Co.: *S.&G. Jones & Manrique 4045* (SWT). Crane Co.: *Warnock 15511* (SWT). Crockett Co.: *Warnock 15291* (SWT). El Paso Co.: *Worthington 17057* (SWT), *Worthington 18928* (SWT). Presidio Co.: *Morden 914* (TAES). Schleicher Co.: *Edmiston 14* (TAES). Scurry Co.: *Johnston 6525* (SWT). Sterling Co.: *Stroman 2046* (TAES). Val Verde Co.: *Labus 353* (SWT); *Warnock 15131* (SWT).

Hopia obtusua (Kunth) Zuloaga & Morrone
Texas. Bandera Co.: *Smith 663* (TEX-LL). Bandera/Medina Co.: *Sanchez 646* (SWT). Blanco Co.: *Johnson 286* (TEX-LL); *Sanchez 852* (SWT). Freestone Co.: *Probst 64* (TAES). Hays Co.: *Jessup 63* (SWT). Kerr Co.: *Sanchez 1082* (SWT). Leon Co.: *Nixon 17985* (TAES). Limestone Co.: *S.&G.*

Jones 1569 (TAES). Medina Co.: *Campos 16* (TAES). Real Co.: *Brown s.n.* (TEX-LL). Travis Co.: *Brown 3364* (TEX-LL); *Brown s.n.* (TEX-LL); *Lynch & Kutac 12110* (TEX-LL); *Tharp & York 50-132* (TEX-LL).

Hordeum murinum L.
Texas. Bexar Co.: *Silveus 20* (TEX-LL). Blanco Co.: *Sanchez 1176* (SWT); *Wipff et al. 80* (TAES). Brewster Co.: *Powell 6093* (TEX-LL); *Warnock s.n.* (SWT). Comal Co.: *Dodson 16* (SWT). Val Verde Co.: *Turner & Warnock 186* (TEX-LL). Williamson Co.: *S.&G. Jones 1231* (TAES); *Lonard 1845* (TAES).

Hordeum pusillum Nutt.
Texas. Bexar Co.: *Mayo 82* (SWT). Brazos Co.: *Toledo 5* (SWT). Edwards Co.: *Evans 27* (TAES); *Gould 11375* (TAES). Gillespie Co.: *Nixon & Brooks 35* (TAES). Grimes Co.: *Lemke 225* (SWT). Guadalupe Co.: *Shipman 91* (SWT). Hays Co.: *Ruiseco 55* (SWT). Kaufman Co.: *Valle 92* (SWT). Tom Green Co.: *Lemke 1631* (SWT). Travis Co.: *Queen 47* (SWT). Uvalde Co.: *Lemke 952, 2403* (SWT).

Hordeum vulgare L.
Texas. Culberson Co.: *Gould 12837* (TAES). Fort Bend Co.: *Knight 146* (SWT). Haskell Co.: *Cory 37158* (TEX-LL). Tom Green Co.: *Beede & Weatherwax s.n.* (TEX-LL). Travis Co.: *Pollock 4* (TAES). Washington Co.: *Carter 19* (TAES); *Osborn 41* (TAES).

Leersia oryzoides (L.) Sw.
Texas. Fannin Co.: *Correll 37968* (TEX-LL). Hays Co.: *Bruchmiller s.n.* (SWT); *Litchfield s.n.* (SWT). El Paso Co.: *Worthington 18292* (SWT). Jack Co.: *Carr 12870* (TEX-LL). Kerr Co.: *Carr & Price 15079* (TEX-LL). Travis Co.: *Brown 332* (TEX-LL), *Carr 15812* (TEX-LL), *Carr & Turner 15035* (TEX-LL). Wood Co.: *Nixon 14013* (SWT).

Leptochloa dubia (Kunth) Nees
Texas. Bandera Medina Co.: *Sanchez 256* (SWT). Caldwell Co.: *Breckenridge 549* (SWT). Comal Co.: *Breckenridge 497* (SWT). El Paso Co.: *Worthington 17922* (SWT). Hays Co.: *Breckenridge 527, 535* (SWT); *Liang 71* (SWT); *Lyday 137* (SWT). Travis Co.: *Warnock & Warnock 5562* (SWT). Val Verde Co.: *Labus 347* (SWT).

Leptochloa fusca (L.) Kunth
Texas. Brazos Co.: *S.&G. Jones 1541* (TAES); *Snow & Jensen 184* (TEX-LL). Brewster Co.: *Correll 30691* (TEX-LL). Burnet Co.: *Carr et al. 9142* (TEX-LL). Cameron Co.: *Carr, Ettel & Williams 18149* (TEX-LL). Castro Co.: *Johnston & Walker 6888* (SWT). El Paso Co.: *Worthington 17425* (SWT). Galveston Co.: *Rosen & Yeargan 612* (SWT). Kleberg Co.: *Lemke 2995* (SWT). Llano Co.: *Butterwick & Lamb 2946* (TEX-LL). Nueces Co.: *Carr & Wolfe 16547* (TEX-LL); *Carr et al. 16868* (TEX-LL). Pecos Co.: *Kruse 203-42* (TAES). Randall Co.: *Carr 18471* (TEX-LL). Refugio Co.: *Hill 7699* (TAES). San Patricio Co.: *Mantique et al. 1729* (TAES). Travis Co.: *LaHue 49* (TAES). Webb Co.: *Ramirez 2* (TEX-LL). Williamson Co.: *Carr & Brown 9226* (TAES). Zapata Co.: *Snow 5901-D* (TEX-LL).

Leptochloa panicea (Retz.) Ohwi
Texas. Bastrop Co.: *Carr 8739* (TEX-LL). Brazos Co.: *S.&G. Jones 3424* (SWT); *Rosen & Jones 637* (SWT). Coleman Co.: *Bible 23* (TEX-LL). Hays Co.: *Breckenridge 499, 523* (SWT); *Mears 608* (TEX-LL). Jones Co.: *Johnston & Walker 6769* (SWT). Taylor Co.: *Tolstead 7557* (SWT). Travis Co.: *Carr 15589* (TEX-LL).

Limnodea arkansana (Nutt.) L.H. Dewey
Texas. Atascosa Co.: *Lemke 142* (SWT). Bandera/Medina Co.: *Lackey 517* (SWT). Brazos Co.: *Gould 15406* (SWT); *Knight & Knight 152* (SWT). Hays Co.: *Lemke et al. 2345* (SWT); *Ruiseco 49* (SWT). Kinney Co.: *Carr 10435* (SWT). San Augustine Co.: *Aljoe 19* (SWT); *George & Nixon 192* (SWT). Travis Co.: *Snow 180* (SWT). Uvalde Co.: *Lemke 1725* (SWT). Washington Co.: *Toledo 33* (SWT).

Lolium perenne L.
Texas. Angelina Co.: *S.&G. Jones 808* (SWT). Bandera Medina Co.: *Lackey 523* (SWT). Bexar Co.: *Hagenbuch 29* (SWT); *Mayo 52* (SWT). Blanco Co.: *Atha 488* (SWT). Grimes Co.: *Hall 112* (SWT). Guadalupe Co.: *Bierner 91-22* (SWT). Travis Co.: *Queen 50* (SWT); *Suitt 60* (SWT); *Trevino 33* (SWT). Sabine Co.: *Lemke 995* (SWT). Washington Co.: *Aljoe 5* (SWT).

Lolium temulentum L.
Texas. Anderson Co.: *Gould 9521* (TEX-LL). Brazos Co.: *Gould 15411* (TAES). Caldwell Co.: *Lemke 452, 470* (SWT). Edwards Co.: *Gould 11379* (TEX-LL). Jack Co.: *Gould 10289* (TAES). Kimble Co.: *Lemke 2666* (SWT). Lamar Co.: *Shinners 14829* (TAES). McLennan Co.: *Smith g1115* (TEX-LL). Refugio Co.: *Gould 9891* (TEX-LL).

Melica nitens (Scribn.) Nutt. ex Piper
Texas. Bandera Medina Co.: *Lackey 453* (SWT). Burnet Co.: *Morden 265* (SWT). Gillespie Co.: *Wipff et al. 112* (TAES). Hays Co.: *Dingee 89* (SWT). Kerr Co.: *Sanchez 1282* (SWT). Kimble Co.: *Sanchez 1054* (SWT). Medina Co.: *Barr 92-0011* (TAES). Travis Co.: *Lemke 3505* (SWT). Uvalde Co.: *Lemke 973* (SWT). Williamson Co.: *S.&G. Jones 1232* (TAES).

Muhlenbergia arenacea (Buckley) Hitchc.
Texas. Brewster Co.: *Warnock W502* (TEX-LL). Culberson Co.: *Correll & Johnston 18543* (TEX-LL). Hudspeth Co.: *Butterwick & Lamb 2787* (TEX-LL); *Warnock & Johnston 16927* (TEX-LL). Jeff Davis Co.: *Manning 949* (TEX-LL); *Powell & Powell 4152* (TAES). Pecos Co.: *Tharp 43-492* (TEX-LL); *Warnock 13324, 46767* (TEX-LL). Sterling Co.: *Liles 29* (TAES). Terrell Co.: *Morden & Hatch 52* (TAES).

Muhlenbergia lindheimeri Hitchc.
Texas. Bandera Medina Co.: *Lackey 275* (SWT). Bexar Co.: *Liles 17* (TAES). Blanco Co.: *Margo 21* (TAES); *Galvan 52* (TAES). Gillespie Co.: *Sanchez 976* (SWT). Hays Co.: *Breckenridge 538* (SWT); *Osborn 20* (SWT). Kendall Co.: *Mattox 37* (SWT). Kerr Co.: *Sanchez 1071* (SWT). Lampasas Co.: *Turner et al. 25* (SWT). Travis Co.: *Carr 3487* (SWT); *Dorr 2624* (TAES). Williamson Co.: *Otto 52* (TAES).

Muhlenbergia porteri Scribn. ex Beal
Texas. Brewster Co.: *Warnock 12784* (TAES). El Paso Co.: *Silveus 751* (TEX-LL); *Van Devender & McCarten s.n.* (TEX-LL). Jeff Davis Co.: *Keough 1212* (TEX-LL). Kerr Co.: *Cunningham 63-53* (TAES). Loving Co.: *Warnock 10689* (TEX-LL). Terrell Co.: *Johnston 6479* (SWT). Val Verde Co.: *Labus 348* (SWT); *Warnock & McBryde 15133* (SWT). Ward Co.: *Warnock 15783* (SWT).

Muhlenbergia reverchonii Vasey & Scribn.
Texas. Bandera/Medina Co.: *Sanchez 308, 642* (SWT). Bell Co.: *Sanchez 1430* (SWT). Blanco Co.: *S.&G. Jones 5993, 5996* (SWT). Hays Co.: *Breckenridge 516, 532, 537* (SWT); *S.&G. Jones 5720* (SWT); *Lemke 667* (SWT). Kerr Co.: *Sanchez 1102* (SWT). Travis Co.: *Bierner 90-213* (SWT); *Carr 3289* (SWT).

Muhlenbergia schreberi Gmel.
Texas. Anderson Co.: *Hatch 5083* (SWT). Grimes Co.: *Jones 3892* (SWT). Hays Co.: *Hatch 4396* (TAES). Houston Co.: *Hatch 6173* (SWT). Kerr Co.: *Clarke 41* (TAES). Kimble Co.: *Sanchez 1044* (SWT). Real Co.: *Silveus 633* (TAES). Robertson Co.: *Gould 7613* (TAES); *Morden 531* (SWT). Travis Co.: *Carr et al. 9320* (SWT).

Muhlenbergia utilis (Torr.) Hitchc.
Texas. Bandera Co.: *Morden 553* (TAES). Blanco Co.: *Brown 2908* (TAES), *Carr & McNeal 10911* (TEX-LL); *Sanchez 917* (SWT); *Silveus 5451* (TEX-LL). Gillespie Co.: *Morden 544* (TAES). Kerr Co.: *Higdon 29* (TEX-LL). Llano Co.: *Poole 2552* (TEX-LL). Terrell Co.: *Silveus 659* (TEX-LL). Travis Co.: *Carr 18653* (TEX-LL); *Carr & Maresh 18646* (TEX-LL).

Muhlenbergia ×involuta Swallen
Texas. Bandera Co.: *Silveus 7393* (TAES). Bexar Co.: *Carr 18604* (TEX-LL); *Carr & Barwick 18604* (TEX-LL). Blanco Co.: *Barnett 1* (TEX-LL); *Breckenridge 558* (SWT). Hays Co.: *Niemann 38-62* (TAES). Kendall Co.: *Silveus 780* (TAES). Travis Co.: *Brown 50-323* (TEX-LL); *Moon 167* (TEX-LL).

Nassella leucotricha (Trin. & Rupr.) R.W.Pohl
Texas. Bandera Medina Co.: *Lackey 427, 491* (SWT). Bee Co.: *Lemke 2245* (SWT). Blanco Co.: *Ramirez 194* (SWT). Brazoria Co.: *Rosen 566* (SWT). Fort Bend Co.: *Knight 141* (SWT). Gillespie Co.: *S.&G. Jones 6625* (SWT). Hays Co.: *Litchfield s.n.* (SWT); *Lyday 312* (SWT). Jeff Davis Co.: *S.&G. Jones 6581* (SWT). Kerr Co.: *Sanchez 1246* (SWT). Llano Co.: *S.&G. Jones 6597* (SWT). McMullen Co.: *Lemke 1600* (SWT). Sutton Co.: *Mitchell 54* (SWT). Travis Co.: *Snow 188* (SWT). Uvalde Co.: *Lemke 936* (SWT).

Panicum antidotale Retz.
Texas. Brewster Co.: *Johnston et al. 10586* (TEX-LL); *Riskind 1858* (TEX-LL). Cameron Co.: *Runyon 5985* (TAES). Duval Co.: *Hatch 5267* (SWT). Frio Co.: *S.&G. Jones 1693* (TAES). Hidalgo Co.: *Correll 36765* (TEX-LL), *Fleetwood 3300* (TEX-LL). Kerr Co.: *Kast 60* (TAES). Uvalde Co.: *Breckenridge 621* (SWT). Williamson Co.: *Price 6* (TAES). Zapata Co.: *Shinners 30854* (TEX-LL).

Panicum capillare L.
Texas. Archer Co.: *Johnston 6586* (SWT). Bosque Co.: *S.&G. Jones 3243* (SWT). Castro Co.: *Johnston & Walker 6885* (SWT). Dallam Co.: *Johnston & Walker 6831* (SWT). Donley Co.: *Johnston & Walker 6784* (SWT). Hays Co.: *Breckenridge 518* (SWT). Jones Co.: *Johnston & Walker 6763* (SWT). Lamb Co.: *Johnston & Walker 6895* (SWT). Stonewall Co.: *Johnston & Walker 6778* (SWT).

Panicum coloratum L.
Texas. Bandera Medina Co.: *Sanchez 585* (SWT). Bexar Co.: *Silveus 7203* (TEX-LL). Gillespie Co.: *Kast 52* (TAES). Guadalupe Co.: *Carr & Turner 12979* (TEX-LL). Hays Co.: *Jessup 53* (SWT); *Sanchez 1410* (SWT). Kleberg Co.: *Perdue 1891, 1895* (TEX-LL). Lampasas Co.: *Hatch 5847* (TEX-LL). Menard Co.: *Clark 49* (TAES).

Panicum hallii Vasey
Texas. Blanco Co.: *Lackey 777* (SWT). Brewster Co.: *Johnston 6426* (SWT). Crockett Co.: *Lemke 2549* (SWT). Hays Co.: *S.&G. Jones 5710* (SWT); *Monahan 25* (SWT); *Preistle 7* (SWT). Kimble Co.: *Sanchez 1026* (SWT). Llano Co.: *Breckenridge 560* (SWT). San Augustine Co.: *George & Nixon 100* (SWT). Tom Green Co.: *Namken 17* (SWT). Val Verde Co.: *Labus 301, 326, 352* (SWT).

Panicum virgatum L.
Texas. Blanco Co.: *Breckenridge 559* (SWT). Colorado Co.: *Breckenridge 605* (SWT). Harris Co.: *Nixon 16093* (SWT). Kendall Co.: *Breckenridge 582* (SWT). Hays Co.: *Bierner 90-208* (TEX-LL). Hunt Co.: *Sanders 3333, 3377, 3718, 3744* (TEX-LL). Kimble Co.: *Hatch 5060* (SWT). Lampasas Co.: *Hatch 5843* (TEX-LL). Menard Co.: *Simpson s.n.* (TEX-LL). Val Verde Co.: *Smith & Butterwick 202* (TEX-LL).

Pappophorum bicolor E. Fourn.
Texas. Cameron Co.: *Lemke 1485* (SWT). Duval Co.: *Hatch 5264* (SWT). King Co.: *Grayum 16* (TAES). Nueces Co.: *Gould 10957* (TAES). Reagan Co.: *Lemke 2580* (SWT). Uvalde Co.: *Shepard 79* (SWT). Val Verde Co.: *Labus 20, 196, 269* (SWT) *Lemke 1682* (SWT). Zapata Co.: *Lemke 1525* (SWT). Zavala Co.: *Adams 59* (SWT); *Casey 64* (SWT).

Pappophorum vaginatum Buckley
Texas. Brewster Co.: *Bierner 91-41* (TEX-LL); *Turner & Turner 21-907* (TEX-LL). Cameron Co.: *Lonard 5002* (SWT); *Van Fleet 7002* (TEX-LL). Kleberg Co.: *Carr 11453* (TEX-LL). Reeves Co.: *Turner 2974* (TEX-LL). Webb Co.: *Perez 66* (TEX-LL); *Ramirez 1* (TEX-LL).

Paspalum dilatatum Poir.
Texas. Bandera Medina Co.: *Lackey 262* (SWT). Blanco Co.: *Sanchez 774* (SWT). Brazos Co.: *Snow 185* (SWT). Caldwell Co.: *Lemke 453* (SWT). Calhoun Co.: *Nuckels 1* (TAES). Fort Bend Co.: *Knight 144* (TAES). Grimes Co.: *Lemke 215, 1934* (SWT). Kimble Co.: *Sanchez 1049* (SWT). Medina Co.: *Gwaltney 31* (TAES). Polk Co.: *Hatch 6546* (TAES); *Jones & Wipff 1454* (SWT).

Paspalum distichum L.
Texas. Brazos Co.: *Shah S-16* (TAES). Galveston Co.: *Rosen 539* (TAES); *Waller & Bauml 3097* (SWT). El Paso Co.: *Worthington 17318* (TAES). Hays Co.: *Jessup 17* (SWT); *Johnson 429* (TEX-LL). Hemphill Co.: *Rowell 4162* (TEX-LL). Llano Co.: *S.&G. Jones & Wipff 3318* (SWT). McMullen Co.: *Carr et al. 11311* (TEX-LL). Randall Co.: *Carr 18468* (TEX-LL). Travis Co.: *Carr & McNeal 12850* (TEX-LL).

Paspalum pubiflorum Rupr. ex E. Fourn.
Texas. Bandera Co.: *Smith 634* (TEX-LL). Hays Co.: *Litchfield s.n.* (SWT); *Tharp s.n.* (SWT). Hidalgo. *Lonard 4933* (SWT). Kinney Co.: *Correll & Ogden 25090-A* (TEX-LL). Llano Co.: *Butterwick & Lamb 2912, 3331* (TEX-LL). Travis Co.: *Carr 4333* (TEX-LL); *Nee & Whelan* (TEX-LL); *Wendt 6990* (TEX-LL).

Paspalum setaceum Michx.
Texas. Galveston Co.: *Hatch 5743* (SWT). Gillespie Co.: *Nixon & Brooks 105* (TAES). Hays Co.: *Ruiseco 12* (SWT). Kenedy Co.: *Lemke 544* (SWT). Kleberg Co.: *Lemke 3145* (SWT). San Augustine Co.: *George & Nixon 33* (SWT). San Jacinto Co.: *Barbee 33* (TAES). San Patricio Co.: *Aljoe 26* (SWT). Starr Co.: *Margo 18* (TAES).

Paspalum urvillei Steud.
Texas. Bandera Medina Co.: *Sanchez 640* (SWT). Blanco Co.: *Sanchez 887* (SWT). Fort Bend Co.: *Breckenridge 595* (SWT). Galveston Co.: *Rosen 293* (SWT). Harris Co.: *Nixon 16082* (SWT). Hays Co.: *Litchfield s.n.* (SWT). Jefferson Co.: *Crockett 8638* (SWT). Kendall Co.: *Breckenridge 583* (SWT). Leon Co.: *Daniel et al. 9* (SWT). Titus Co.: *Lemke 1290* (SWT).

Pennisetum ciliare (L.) Link
Texas. Caldwell Co.: *Breckenridge 555* (SWT). Cameron Co.: *Lemke 575* (SWT). Dimmit Co.: *Lemke 1893* (SWT). Hidalgo Co.: *Hook 16* (SWT); *S.&G. Jones 864* (SWT); *Lemke 853, 888* (SWT). Live Oak Co.: *Bohls 25* (SWT). Starr Co.: *Lemke 861* (SWT). Val Verde Co.: *Labus 316* (SWT). Zapata Co.: *Lemke 1514* (SWT).

Phalaris caroliniana Walt.
Texas. Atascosa Co.: *Lemke 144* (SWT). Blanco Co.: *Wipff et al 73* (TAES). Childress Co.: *Spoonts 82013* (TAES). Fayette Co.: *Ramu et al. 40* (TAES). Frio Co.: *Lemke 2370* (SWT). Lampasas Co.: *S.&G. Jones 1246* (SWT). McCulloch Co.: *Hatch 6252* (TAES). San Patricio Co.: *Lemke 834* (SWT). Uvalde Co.: *Lemke 1818* (SWT). Zavala Co.: *Shepard 47* (SWT).

Phragmites australis (Cav.) Trin. ex Steud.
Texas. Armstrong Co.: *Rowell 5352* (TEX-LL). Brazoria Co.: *Rosen & Hatch et al. 489* (SWT). Brewster Co.: *Correll & Correll 35388* (TEX-LL). Galveston Co.: *Breckenridge 598* (SWT); *Hatch 5753* (SWT); *Schmidt 45* (SWT). Grayson Co.: *Nee & Diggs 43898* (TEX-LL). McCulloch Co.: *Hatch 6252* (TAES). Oldham Co.: *Smith 125* (TEX-LL).

Poa annua L.
Texas. Brazoria Co.: *Dingee 34* (SWT). Brazos Co.: *Toledo 4* (SWT). Caldwell Co.: *Lemke 2166* (SWT). Comal Co.: *Behrends 23* (SWT). DeWitt Co.: *Logeman 7* (SWT). Galveston Co.: *Rosen 524* (SWT). Gillespie Co.: *Weidenfeller 96* (SWT). Lavaca Co.: *Queen 30* (SWT). Travis Co.: *Snow 175* (SWT); *Stefani 49* (SWT); *Suitt 72* (SWT).

Poa arachnifera Torr.
Texas. Blanco Co.: *Wipff 95, 105* (TAES). Burleson Co.: *Morden 236* (SWT). Caldwell Co.: *Adair 16* (TAES). Coryell Co.: *Sanchez 1445* (SWT). Gillespie Co.: *Correll & Johnston 21174* (TEX-LL). Lampasas Co.: *S.&G. Jones 1265* (SWT). McLennan Co.: *Holmes 5651* (SWT). Tom Green Co.: *Namken 29* (SWT). Travis Co.: *Carr 6238* (TAES). Williamson Co.: *Lonard 2012* (TAES).

Polypogon monspeliensis (L.) Desf.
Texas. Atascosa Co.: *Lemke 170* (SWT). Bandera/Medina Co.: *Lackey 551* (SWT). Brazos Co.: *Gould & Hycka 7988* (TEX-LL); *Hatch 4113* (TEX-LL); *S.&G. Jones 1535* (SWT); *Snow 183* (SWT). Burleson Co.: *Gould & Celerier 5450* (TEX-LL); *Morden 236* (TEX-LL). Galveston Co.: *Toledo 10* (SWT). Jeff Davis Co.: *Bierner 37* (SWT). McLennan Co.: Holmes *3651* (TEX-LL). Medina Co.: *Lemke 1737* (SWT). Travis Co.: *Brown s.n.* (TEX-LL); *Carr 6238* (TEX-LL).

Polypogon viridis (A. Gouan) M. Breistr.
Texas. Bandera Co.: *Smith 554* (TEX-LL). Brewster Co.: *Warnock 776* (TEX-LL). Culberson Co.: *Lind s.n.* (TEX-LL). El Paso Co.: *Worthington 5421* (TEX-LL). Freestone Co.: *Do 543* (TEX-LL). Gillespie Co.: *Nixon 48* (TEX-LL). Jeff Davis Co.: *Bierner 91-38* (SWT). Presidio Co.: *Butterwick & Strong 883a* (TEX-LL). Travis Co.: *Nee & Whelan 11823* (TEX-LL).

Schedonnardus paniculatus (Nutt.) Trel.
Texas. Archer Co.: *Johnston 6589* (SWT). Blanco Co.: *Kelley 3* (TAES). Coryell Co.: *Sanchez 1421* (SWT). Hays Co.: *Bailey 94* (SWT); *Jessup 124* (SWT). Kendall Co.: *Seidensticker 127* (TAES). Medina Co.: *S.&G. Jones 1783* (TAES). Red River Co.: *S.&G. Jones 2866* (SWT). Swisher Co.: *Johnston 6572* (SWT).

Schizachyrium scoparium (Michx.) Nash
Texas. Bandera Medina Co.: *Lackey 323* (SWT). Blanco Co.: *Sanchez 954* (SWT). Brazoria Co.: *Rosen 697* (SWT). Caldwell Co.: *Lemke 769* (SWT). Comal Co.: *Breckenridge 498* (SWT). Edwards Co.: *Evans 35* (SWT). Hays Co.: *Lyday 147* (SWT). Kerr Co.: *Sanchez 1066* (SWT). Robertson Co.: *Lemke 3343* (SWT). Travis Co.: *Bierner 90-212* (SWT); *Warnock & Warnock 5566* (SWT).

Setaria grisebachii E. Fourn.
Texas. Brewster Co.: *Hinkley & Hinkley 226* (TEX-LL); *Powell & Powell 6257* (TEX-LL). Edwards Co.: *Correll 31552* (TEX-LL). El Paso Co.: *Worthington 17328, 17376* (TAES). Jeff Davis Co.: *Correll 34991* (TEX-LL); *Keough 38* (TEX-LL); *Warnock 22593* (TEX-LL). San Saba Co.: *Ellis 218* (TAES). Val Verde Co.: *Warnock 11687* (TEX-LL); *Warnock & McBryde 15151* (SWT).

Setaria leucopila (Scribn. & Merr.) K. Schum.
Texas. Brewster Co.: *S.&G. Jones 6541* (SWT). El Paso Co.: *Hatch 5862* (SWT); *Worthington 17058* (SWT). Hardeman Co.: *Carr 9811* (SWT). Hays Co.: *Breckenridge 490* (SWT); *Tabler s.n.* (SWT). Hidalgo Co.: *Lonard 4921* (SWT). Medina Co.: *Gwaltney 29* (TAES). Pecos Co.: *Brown 1253* (TAES). Tom Green Co.: *Morgan 56* (SWT). Travis Co.: *Allred 1447* (TAES); *LaHue 44* (TAES).

Setaria parviflora (Poir.) Kerguélen
Texas. Anderson Co.: *Nixon 14129* (SWT). Bandera/Medina Co.: *Lackey 281* (SWT). Blanco Co.: *Sanchez 849, 897* (SWT). Brazoria Co.: *Rosen 205* (SWT). Caldwell Co.: *Breckenridge 545* (SWT). Fort Bend Co.: *Breckenridge 596* (SWT). Galveston Co.: *Rosen 480* (SWT); *Rosen & Jones 601* (SWT). Gonzales Co.: *Lemke 2687* (SWT). Grayson Co.: *Boylan 420* (SWT). Hays Co.: *Lemke 2746* (SWT).

Setaria pumila (Poir.) Roem. & Schult.
Texas. Bexar Co.: *Morris 44* (SWT). Brown Co.: *Hewitt 1* (TEX-LL). Galveston Co.: *Waller 3798* (TEX-LL). Hays Co.: *Beard 29* (SWT). Real Co.: *Smith & Butterwick 290* (TEX-LL). San Patricio Co.: *Hatch 4136* (TEX-LL). Shelby Co.: *Rosen & Jones 683* (SWT). Walker Co.: *Carr 13268* (TEX-LL). Wise Co.: *Lemke 609* (SWT).

Setaria reverchonii (Vasey) Pilger
Texas. Bandera/Medina Co.: *Lackey 542* (SWT). Bell Co.: *Coffey 1726* (TAES). Bexar Co.: *Silveus 7606* (TAES). Brewster Co.: *S.&G. Jones & Manrique 463* (SWT). Brown Co.: *Harris 142* (SWT). Comal Co.: *Liles 10* (TAES). Coryell Co.: *Wipff 226* (SWT). Donley Co.: *Johnston & Walker 6786, 6795* (SWT). Frio Co.: *Gould 11281* (TAES). Lampasas Co.: *Jones 40* (SWT). Shackelford Co.: *Johnston 6602* (SWT).

Setaria scheelei (Steud.) Hitchc.
Texas. Bandera Medina Co.: *Lackey 324* (SWT). Bexar Co.: *Liles 36* (TAES). Blanco Co.: *Sanchez 822, 945* (SWT). Hays Co.: *Neimann 18-62* (TAES); *Priestle 73* (SWT); *Reardon 76* (TAES); *Thomas 83* (SWT). Kimble Co.: *Sanchez 1039* (SWT). Llano Co.: *Gould 8432* (TAES); *Heinemann 63-25* (TAES); *Wallace 12* (SWT). Travis Co.: *Carr 3344* (TAES); *Elam 38* (TAES). Uvalde Co.: *Bownds 8* (TAES).

Setaria verticillata (L.) P. Beauv.
Texas. Brewster Co.: *Hatch & Morden 4325A* (TAES); *Morden & Hatch 62* (TAES); *Warnock 9120* (TEX-LL). Cameron Co.: *Carr et al. 13328* (TEX-LL); *Fleetwood 3744* (TEX-LL). El Paso Co.: *Worthington 17416* (SWT). Hidalgo Co.: *Lonard 3289* (TAES), *Lonard 5023* (SWT). Nueces Co.: *Jones 4229* (TEX-LL).

Setaria villosissima (Scribn. & Merr.) K. Schum.
Texas. Gillespie Co.: *Emery 444, 445, 447, 448, 455, 458, 464, 465* (TEX-LL); *Silveus 2337* (TAES). Llano Co.: *Emery 475, 591* (TEX-LL).

Setaria viridis (L.) P. Beauv.
Texas. Crockett Co.: *Lemke 2632* (SWT). Edwards Co.: *Evans 25* (TAES). Hays Co.: *Liang 50* (SWT); *Osborn 35* (SWT). Jeff Davis Co.: *Morden & Hatch 86* (TAES); *Worthington 13760* (SWT). Kinney Co.: *Rosen 233, 253* (SWT). Tyler Co.: *S.&G. Jones 3691* (SWT). Williamson Co.: *S.&G. Jones 1831* (SWT); *S.&G. Jones 3016* (TAES).

Sorghastrum nutans (L.) Nash
Texas. Anderson Co.: *Nixon 14127* (SWT). Brazoria Co.: *Rosen 696* (SWT). Fayette Co.: *Lemke 2000* (SWT). Hays Co.: *Lemke 2716* (SWT). Kaufman Co.: *Lemke 2939* (SWT). Kendall Co.: *Breckenridge 578, 579.* Kerr Co.: *Bownds 16* (TAES). McLennan Co.: *Henard 64-31* (TAES). Robertson Co.: *Lemke 3345* (SWT). Travis Co.: *Carr 4387* (TAES).

Sorghum bicolor (L.) Moench
Texas. Blanco Co.: *Sanchez 908* (SWT). Brazoria Co.: *Jordon s.n.* (TEX-LL). Brazos Co.: *Morden 1036* (TAES). Denton Co.: *Boylan 264* (SWT). Galveston Co.: *Morden 114* (TAES). Harris Co.: *Treverse 1318* (TEX-LL). Hidalgo Co.: *Crockett 8022* (SWT); *Leal 27* (TAES). Kimble Co.: *Turner 97-500* (TEX-LL). Presidio Co.: *Correll & Rollins 23690* (TEX-LL).

Sorghum halepense (L.) Pers.
Texas. Bandera/Medina Co.: *Lackey 549* (SWT). Blanco Co.: *Sanchez 789* (SWT). Brewster Co.: *Warnock s.n.* (SWT). Burnet Co.: *Adams 19* (SWT). Comal Co.: *Schoolcraft 104* (SWT). Crockett Co.: *Lemke 2571* (SWT). Fayette Co.: *Lemke 1996* (SWT). Hays Co.: *Burleson 19* (SWT). Wharton Co.: *Losack 76* (SWT).

Sphenopholis obtusata (Michx.) Scribn.
Texas. Angelina Co.: *Jones & Powell* (SWT). El Paso Co.: *Worthington 14125, 17954* (SWT). Fort Bend Co.: *Knight 140* (SWT). Gonzales Co.: *Carr 7271* (SWT). Liberty Co.: *Hatch 4717* (SWT). Polk Co.: *Jones & Wipff 1467* (SWT). San Patricio Co.: *Toledo 54* (SWT). Wood Co.: *S.&G. Jones & Powell 2764* (SWT).

Sporobolus airoides (Torr.) Torr.
Texas. Brewster Co.: *S.&G. Jones 6542* (SWT). Crane Co.: *Powell 2376* (TEX-LL). Culberson Co.: *Burgess 814* (TAES). Dallam Co.: *Gould & Thomas 7137* (TEX-LL). El Paso Co.: *Walsh 19a* (TAES); *Worthington 17180* (SWT). Harris Co.: *Brown 9422* (TEX-LL). Presidio Co.: *McWilliams 6* (TAES); *Ohlendorf 773* (TAES); *York 48261* (TEX-LL). Travis Co.: *Brown D-4* (TEX-LL).

Sporobolus clandestinus **(Biehler) Hitchc.**
Texas. Hays Co.: *S.&G. Jones 5713* (TAES); *Ruiseco 34* (SWT). Houston Co.: *S.&G. Jones & Wipff 5798* (SWT). Rusk Co.: *Rosen & Jones 674* (SWT).

Sporobolus compositus (Poir.) Merr.
Texas. Brown Co.: *Black 229* (SWT). Coryell Co.: *Sanchez 1420* (SWT). Gillespie Co.: *Sanchez 990, 1604.* Hays Co.: *Breckenridge 462, 504, 505, 526, 533* (SWT); *S.&G. Jones 5713* (SWT); *Ruiseco 34* (SWT). San Augustine Co.: *George & Nixon 165* (SWT). Val Verde Co.: *Labus 300* (SWT).

Sporobolus cryptandrus (Torr.) A. Gray
Texas. Cameron Co.: *Lemke 573* (SWT). El Paso Co.: *Worthington 17419* (SWT). Glasscock Co.: *Johnston & Walker 6966* (SWT). Jones Co.: *Johnston & Walker 6766* (SWT). Kimble Co.: *Sanchez 1037* (SWT). Kinney Co.: *Rosen 223* (SWT). Lavaca Co.: *Johnston 6729* (SWT). Lee Co.: *S.&G. Jones 3351* (SWT). Live Oak Co.: *Bohls 24* (SWT). Winkler Co.: *S.&G. Jones 7458* (SWT).

Sporobolus pyramidatus (Lam.) Hitchc.
Texas. Aransas Co.: *Hays 151* (TAES). Brazos Co.: *Fox 69* (SWT). Calhoun Co.: *Harvey 7585* (TAES). Fayette Co.: *Knight 176* (SWT). Hays Co.: *Rosen et al. 1172* (SWT). Jackson Co.: *Lemke 2898* (SWT). Karnes Co.: *Davidson 12* (TAES). Kleberg Co.: *Lemke 3006* (SWT). Nueces Co.: *Lemke 3333* (SWT). San Patricio Co.: *Toledo 46* (SWT). Victoria Co.: *Budd 54* (TAES).

Sporobolus vaginiflorus (Torr. ex A. Gray) Alph. Wood
Texas. Blanco Co.: *Sanchez 916* (SWT). Caldwell Co.: *Lemke 2019* (SWT). Carson Co.: *Johnston & Walker 6806* (SWT). Comal Co.: *Breckenridge 493* (SWT); *Lemke 755* (SWT). Gillespie Co.: *Sanchez 957* (SWT). Hays Co.: *S.&G. Jones 5712* (SWT); *Lyday 291* (SWT). Kerr Co.: *Hatch 4712* (SWT); *Sanchez 1063* (SWT). Kimble Co.: *Sanchez 1045* (SWT).

Steinchisma hians (Ell.) Nash
Texas. Brazoria Co.: *Amestoy 88* (TAES); *Campbell 22* (TAES). Brazos Co.: *Knight 181* (SWT). Freestone Co.: *Probst 64* (TAES). Galveston Co.: *Rosen 574* (SWT); *Waller 2680* (SWT). Grimes Co.: *Lemke 172, 221* (SWT). Jefferson Co.: *Crockett 6871* (SWT). Lamar Co.: *Johnston 6277* (SWT). Lavaca Co.: *Nuckels 55* (TAES). Leon Co.: *Nixon 17911, 17985* (TAES). San Patricio Co.: *Aljoe 22* (SWT). Victoria Co.: *Budd 44* (TAES); *Chandler 50* (TAES).

Stenotaphrum secundatum (Walt.) Kuntze
Texas. Brazos Co.: *Junkin 75* (TAES). Caldwell Co.: *Lemke 2678* (SWT). Edwards Co.: *Butterwick & Smith 459* (TEX-LL). Galveston Co.: *Waller et al. 2825* (TEX-LL). Hays Co.: *Litchfield s.n.* (SWT). Hidalgo Co.: *Lonard 4916* (SWT). Matagorda Co.: *Cecora 16-C* (TAES). Nueces Co.: *Carr & Wolfe 16396* (TEX-LL). San Patricio Co.: *Toledo 52* (SWT). Travis Co.: *Henard 64-59* (TAES).

Tragus berteronianus Schult.
Texas. Brooks Co.: *Tharp s.n.* (TEX-LL). Burnet Co.: *Breckenridge 618* (SWT). Culberson Co.: *Reeder & Reeder 5932* (TEX-LL). Gillespie Co.: *Parks s.n.* (TAES). Jim Hogg Co.: *Tharp 5237* (SWT). Jim Wells Co.: *Barton 64* (TAES). Llano Co.: *Butterwick & Lamb 3041* (TEX-LL); *Gould 8435* (TEX-LL); *Wipff & Jones 1355* (TEX-LL). San Patricio Co.: *Bownds 41* (TAES). Webb Co.: *Trevino 11* (TEX-LL).

Tridens albescens (Vasey) Wooton & Standl.
Texas. Bandera/Medina Co.: *Lackey 516* (SWT). Bee Co.: *Lemke 2243* (SWT). Blanco Co.: *Sanchez 885* (SWT). Brown Co.: *Capo 17* (SWT). Caldwell Co.: *Breckenridge 550* (SWT). Dimmit Co.: *Lemke 1880* (SWT). Fayette Co.: *Aljoe 2* (SWT). Kendall Co.: *Breckenridge 575* (SWT). Kerr Co.: *Sanchez 1094* (SWT). McMullen Co.: *Lemke 1602* (SWT). Tom Green Co.: *Lemke 1632* (SWT). Val Verde Co.: *Labus 145, 253* (SWT).

Tridens buckleyanus (L.H. Dewey) Nash
Texas. Bexar Co.: *Carr & Price* 12370, 12376 (TEX-LL). Hays Co.: *Carr & Johnston 17754* (TEX-LL). Kendall Co.: *Carr et al. 12984* (TEX-LL). Travis Co.: *Carr 6150, 6164, 9261* (SWT); *Carr 11121, 18643* (TEX-LL); *Hatch 5828* (TEX-LL); *Johnston s.n.* (TEX-LL).

Tridens eragrostoides (Vasey & Scribn.) Nash
Texas. Cameron Co.: *Carr 14411* (TEX-LL); Correll *& Rollins 20970* (TEX-LL); *Fleetwood 3508, 3775* (TEX-LL). Hays Co.: *Tharp s.n.* (TEX-LL). Karnes Co.: *Johnson 883* (TEX-LL). Kinney Co.: *Moore et al. 8854* (TEX-LL). Kleberg Co.: *Carr 11562* (TEX-LL); *Johnston 54380* (TEX-LL). Uvalde Co.: *Reverchon 1617* (TEX-LL). Webb Co.: *Martinez & Trevino 9* (TEX-LL).

Tridens flavus (L.) Hitchc.
Texas. Donley Co.: Johnston *& Walker 6793* (SWT). Gillespie Co.: *Sanchez 992* (SWT). Houston Co.: *Hatch 6165* (SWT); *Rosen & Jones 642* (SWT). Kerr Co.: *Sanchez 1085* (SWT). Kimble Co.: *Sanchez 1047* (SWT). Robertson Co.: *Lemke 3351* (SWT). San Augustine Co.: *George & Nixon 87* (SWT). Titus Co.: *Lemke 1248* (SWT).

Tridens muticus (Torr.) Nash
Texas. Bandera/Medina Co.: *Sanchez 647* (SWT). Burnet Co.: *Lemke 2036* (SWT); *Pollok 8* (SWT). Comal Co.: *Breckenridge 496* (SWT). Duval Co.: *S.&G. Jones 894* (SWT). Hays Co.: *Lemke 669* (SWT); *Lyday 300* (SWT); *Staton 20* (SWT). Kendall Co.: *Breckenridge 573* (SWT). Travis Co.: *Carr 6165* (SWT). Val Verde Co.: *Labus 299, 323* (SWT).

Tridens texanus (S. Watson) Nash
Texas. Bandera/Medina Co.: *Lackey 486, 531* (SWT). Burnet Co.: *Lemke 2032* (SWT). Edwards Co.: *Evans 49* (SWT). Hays Co.: *Thomas 75* (SWT). Kimble Co.: *Sanchez 1033* (SWT). Llano Co.: *Breckenridge 562* (SWT); *Gould 7530* (TAES). Medina Co.: *Campos 24* (TAES). Val Verde Co.: *Labus 214* (SWT). Zavala Co.: *Casey 72* (SWT).

Triplasis purpurea (Walt.) Chapm.
Texas. Anderson Co.: *Hatch 5071* (SWT). Bailey Co.: *Gould 7745* (TEX-LL). Bastrop Co.: *Carr & Kutac 9264* (SWT). Cochran Co.: *Johnston & Walker 5431* (SWT). Crane Co.: *Warnock 15495* (SWT). Kerr Co.: *Cunningham 63-30* (TAES). Hutchinson Co.: *Higgins 9633* (TEX-LL). Limestone Co.: *Shinners 30571* (TEX-LL). Rusk Co.: *Rosen & Jones 671* (SWT). Tarrant Co.: *Fraser 64-2* (TAES). Travis Co.: *Higdon s.n.* (TEX-LL).

Tripogon spicatus (Nees) Ekman
Texas. Burnet Co.: Breckenridge *614* (SWT); *Lemke 2046* (SWT). Llano Co.: *Gould 7553, 9966* (TEX-LL); *Jones & Wipff 3343* (SWT); *Sestak 63* (TAES); *Tharp s.n.* (TEX-LL). Mason Co.: *Singhurst et al. 8206* (TEX-LL). Travis Co.: *Carr et al. 15096* (TEX-LL); *Carr & Turner 15842* (TEX-LL).

Tripsacum dactyloides (L.) L.
Texas. Bandera/Medina Co.: *Lackey 331* (SWT). Blanco Co.: *Sanchez 813* (SWT). Brazos Co.: *Rosen 276* (SWT). Fayette Co.: *Knight 171* (SWT). Gillespie Co.: *Allred 1454* (TAES); *Kast 20, 82* (TAES); *Sanchez 1022* (SWT). Hays Co.: *Breckenridge 587* (SWT). Medina Co.: *Gwaltney 30* (TAES). Uvalde Co.: *Kellner s.n.* (TAES); *Lemke 1805* (SWT). Washington Co.: *Toledo 35* (SWT).

Trisetum interruptum Buckley
Texas. Blanco Co.: *Wipff et al. 109* (TAES). Brazos Co.: *Hatch 2151* (TAES). Edwards Co.: *Evans 43* (SWT). Galveston Co.: *Waller & Bauml 3492* (SWT). Harris Co.: *Brown 20327* (TEX-LL). Kerr Co.: *May 5541* (TAES). San Augustine Co.: *George & Nixon 211* (TAES). San Patricio Co.: *Aljoe 21* (SWT). Washington Co.: *Jones & Wipff 1183* (SWT); *Toledo 34* (SWT).

Triticum aestivum L.
Texas. Bexar Co.: *Hagenbuch 30* (SWT). Brewster Co.: *Morden 433* (TAES). Dallas Co.: *Hynes s.n.* (TEX-LL); *Lundell & Lundell 12837* (TEX-LL). Galveston Co.: *Waller & Campbell 2692* (TEX-LL). Garza Co.: *Hutchins 465* (TEX-LL). Hays Co.: *Ruiseco 128* (SWT). Karnes Co.: *Lemke 1696* (SWT). Live Oak Co.: *S.&G. Jones 821* (TAES). Williamson Co.: *Swofford 100* (SWT).

Urochloa ciliatissima (Buckley) R.D. Webster
Texas. Bexar Co.: *Silveus 125* (TEX-LL). Caldwell Co.: *Johnston 6756* (SWT). Gillespie Co.: *Nixon 131* (TEX-LL). Hidalgo Co.: *Johnston 54536* (TEX-LL). Lavaca Co.: *Johnston 6746* (SWT). Leon Co.: *Johnston 6703* (SWT). Llano Co.: *Butterwick & Lamb 2931* (TEX-LL). Medina Co.: *Johnston et al. 3410* (TEX-LL). Travis Co.: *Carr & Price 11410* (TEX-LL). Williamson Co.:*Orzell & Bridges 10576* (TEX-LL).

Urochloa fusca (Sw.) B.F. Hansen & Wunderlin
Texas. Bastrop Co.: *Carr 6073* (SWT). Bexar Co.: *Carr & Turner 14010* (TEX-LL). Brazoria Co.: *Rosen 213* (SWT). Dimmit Co.: *S.&G. Jones 1712* (SWT). Fayette Co.: *Carr & Kutac 7850* (TEX-LL). Kleberg Co.: *Carr 11418* (TEX-LL). McLennan Co.: *S.&G. Jones 3218* (SWT). Nueces Co.: *Carr 11518* (TEX-LL). Travis Co.: *Gould 7621* (TEX-LL); *Turner 64* (TEX-LL).

Urochloa texana (Buckley) R.D. Webster
Texas. Brooks Co.: *Davis s.n.* (TEX-LL). Burnet Co.: *Wooton 65* (SWT). Duval Co.: *Correll & Johnston 25515* (TEX-LL); *Hatch 5266* (SWT). Eastland Co.: *Hill & McCart 9246* (TEX-LL). Garza Co.: *Hutchins 1369* (TEX-LL). Grayson Co.: *Nee 44003* (TEX-LL). Robertson Co.: *Lemke 3368* (SWT). Travis Co.: *Carr & Turner 15829* (TEX-LL). Webb Co.: *Baird 61-60-24* (TEX-LL).

Vulpia octoflora (Walt.) Rydb.
Texas. Aransas Co.: *Lemke 1417* (SWT). Brazos Co.: *Knight 150* (SWT); *Toledo 20* (SWT). Comal Co.: *Rakestraw 39* (TAES). Galveston Co.: *Rosen 559* (SWT). Grimes Co.: *Lemke 213, 227* (SWT). Kerr Co.: *Cocke 9* (TAES). Kimble Co.: *Morden et al. 699* (TAES). Leon Co.: *Couch 42* (SWT), *Snider 26* (TAES). San Patricio Co.: *Lyons 25* (SWT). Travis Co.: *Lemke 3511* (SWT).

Zizaniopsis miliacea (Michx.) Döll & Asch.
Texas. Bexar Co.: *Döll & Aschers 2249, 2676* (TEX-LL). Brazos Co.: *Stewart s.n.* (TAES). Chambers Co.: *Rosen 538* (SWT); *Whitbeck 58* (TAES). Hays Co.: *Tharp s.n.* (SWT). Llano Co.: *Rodgers et al. 6887* (TEX-LL). San Patricio Co.: *Toledo 44* (SWT). Travis Co.: *Barkley 13464* (TEX-LL); *Carr & Turner 15285* (TEX-LL). Trinity Co.: *Marsh & McLeod s.n.* (TAES). Walker Co.: *S.&G. Jones 640* (TAES).